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A QUESTION OF ETHICS IN TRADE.

FROM the first it has been the policy of THE INDIA RUBBER WORLD to oppose the production of rubber goods of poor quality, as bound to prove in the end unprofitable to everybody concerned. It must be confessed that, at times, the temptation has been strong to adapt the standard of quality in rubber products to what appeared to be the prevailing demand. When the prices of rubber have soared to unaccustomed heights, and when certain manufacturers have continued to sell at the prices previously prevailing, there could be no choice, if doing business at a loss was to be avoided, but the alternative of debasing the quality of goods. Neither policy, however, can be defended. The manufacturer is no more just to himself who elects to do business at a loss than he is to his customers when he turns out goods that are not what they appear to be. That the only sound basis of the rubber manufacture is to produce goods of honest quality and to refuse to sell them except at a profit has been demonstrated fully by the history of the industry in America. It is not too much to assert that the rubber manufacturers in this country who are in the most satisfactory position to-day are those who have exerted themselves most strongly against the deterioration of rubber goods standards. On the other hand, most of the failures of rubber concerns have been due to the policy of making everything else yield to making the largest possible present sales, without regard to whether the buyers would ever care to repeat their orders. To indicate how this subject is regarded by men of experience, the following is quoted from the conversation, recently, of the head of one of the oldest and most successful American rubber factories: "If we improve the quality of our goods it is the best advertisement that we can get. That is what has put us where we are in the trade, and that is what we rely on to keep us there."

These considerations have been based upon the domestic rubber trade, but they are even more applicable to the export branch of the industry. On account of the remoteness of foreign markets, an unfavorable reputation once gained in them is harder to live down than might be the case at home. An illustration of this fact exists in the history of some German industries, in respect to which it is still common to hear it remarked that their products are "cheap and nasty," though in all justice it must be said that the original justification for the use of this term, by a distinguished German, has been removed. As having a certain bearing upon our subject, a bit of German industrial history has been written at the request of THE INDIA RUBBER WORLD, as follows:

Nearly twenty-five years ago, during the Philadelphia Centennial Exhibition, the manufacturers of Germany were much disturbed to hear the expression "billig und schlecht" (cheap and nasty) applied by their own commissioner, Professor Francis Reuleaux, to the German machinery exhibits there shown.

The disturbance was the greater because it was known that there was no more competent authority on the subject of machine design and construction than Professor Reuleaux, he having been for years the foremost

educator in engineering work in Switzerland and Germany, while, being a German by birth and a Prussian privy councillor, it could not be asserted that any foreign animus was behind the charge.

It was undoubtedly the truth that the exhibits in the German section of the Centennial Exhibition were far below those of other countries, but it took much courage on the part of the one German member of the technical jury to risk personal popularity and incur the probability of official displeasure to tell what was undoubtedly the unwelcome truth.

Since that time German industry has been developing at a rapid rate, much of the process being due to the work of the pupils of the great technical academy at Charlottenburg, near Berlin, where Professor Reuleaux was the director, and where he instilled into the minds of the students the necessity of retrieving the national reputation as engineers and manufacturers. The whole manufacturing population of Germany was also aroused by the criticism, which, cutting as it was, was generally recognized as just; and the result has amply vindicated the wisdom of the criticism.

Germany made no exhibit at Paris in 1889, but at the World's Fair at Chicago in 1893 the German section, particularly in the mechanical department, was remarkable for its high character and value. The writer had the privilege of examining critically the German engineering section in company with Professor Reuleaux, then, as in 1876, a commissioner from Germany, and his gratification at the evidence of the progress for which he was so largely responsible was naturally most marked. It is expected that a still greater effort will be made in Germany to have the exhibition at Paris in 1900 bear stronger witness to the fact that the deserved criticism of 1876 has been wholly overcome, and to-day German manufacturers proudly mark their goods "billig und gut" (cheap and good), not fearing to call attention to the former charge of inferiority.

It is true that there is no reference to India-rubber in this sketch, but it is not likely that, in a growing nation in which so much development has been made in other industries, the rubber manufacture should have failed also to make progress. The rubber manufacturers of other nations, therefore, who attempt to extend their export trade upon the theory that they will encounter in German competition only low grade goods, may find themselves very much mistaken. It will be best to take care that they do not offer cheaper grades than the supposed "cheap and nasty" goods, and thereby lose prestige with foreign buyers.

While doubtless one may find in any country in which rubber is manufactured grades of goods to suit any price offered, it is none the less true that every article of inferior rubber turned out damages the reputation of the entire industry in the minds of the uninformed. It is bad enough to sell such things at home; it is far worse to ship them abroad and thus give a blow to the whole export interest in rubber.

It seems worth while to quote here the assertion of a former governor of Wisconsin, at a late meeting of the National Dairy Union, that American exports of cheese to England have declined 80 per cent. in ten years, because of the substitution of "filled" cheese for honest goods. "Sound ethics," said this plain speaker, "is good commerce. Fraud results in loss of trade." This is good doctrine as applied to rubber no less than to cheese. Certainly there are elements in the American rubber trade of too high a standard for American rubber goods on the whole to merit the appellation of "cheap and nasty," which it is quite possible to earn by a failure to ship only good grades. It may be mentioned, too, that the decline in the exports of American

bicycles is widely attributed to facts not creditable to the exporters. The United States consul at Chemnitz reports to his government that the American bicycle trade has been hurt by the shipment of too many poor machines. Certain it is that the bicycle exports to Germany have fallen off one-half in a year, and the fact and its causes should not be lost sight of in other industries.

PRESIDENT MCKINLEY'S RECOMMENDATION, in his annual message to Congress, that attention be paid to the cultivation of the products for which our new insular possessions seem especially fitted, together with the announcement by the secretary of agriculture that plans are being matured for systematic experiments under governmental auspices for carrying this recommendation into effect, undoubtedly will have the effect of stimulating the interest felt already in America in the subject of cultivating India-rubber. This is the first indication of an interest in rubber planting on the part of the United States government, but this is due to the fact that hitherto we have not had the incentive, in the shape of tropical possessions, which has led several European governments to take the matter in hand. But now that a beginning has been determined upon, it is probable that the experiments will be undertaken on a more liberal scale by our country, and carried out more thoroughly than has been the case with any other government, with the result of reaching conclusions of value at the earliest possible date. Considering that more than half of the India-rubber produced in the world enters into the manufacture of goods in the United States for home consumption, the subject merits the attention of the government, and all the more so because large areas now under the Stars and Stripes appear to be favored by nature with all the conditions requisite for the production of some of the most valuable species of rubber—the Pará sorts being excepted. Of course the development of rubber planting on a commercial scale must depend upon private enterprise, both because this is the American policy and because, in the nature of things, governmental cultivation of any crop can never be so profitable as under private control. At the same time, the agricultural department may well engage in scientific investigation of the matter, since the countries involved are more or less remote from us, making it inconvenient for our citizens to conduct experiments in them in a branch where results must be so long delayed, particularly as the present residents of the various islands are hardly fitted by nature or inclination to initiate systematic experiments and have not the means to do so. If for no other reason, the proposed new undertaking should prove of value in pointing out what is to be avoided by intending investors in rubber planting.

THE POINT OF CHIEF INTEREST to the rubber trade in connection with the late New York cycle and automobile show related to the project for supplying tires for the latter vehicles. While the newness of the automobile gives it prominence in the public mind, which fact in turn appeals to the interest of capitalists on the lookout for new channels for investing money in production, the fact is that no very great number of horseless vehicles has yet been produced. At the same time the character of the people who manifest a desire to own automobiles of some sort, and the widespread distribution of this interest, compels the belief that ultimately the use of these vehicles will be very important. The ultimate type of automobile is of little concern to the rubber manufacturers, compared with the form of tire which will be accepted finally as the standard. With regard to this feature the late show revealed few indications of value.

CONDITIONS OF RUBBER PLANTING IN MEXICO.*

TO THE EDITOR OF THE INDIA RUBBER WORLD: In writing at your request some notes bearing upon the cultivation of the *Castilloa elastica*, in addition to what I have already contributed to your journal, I wish particularly to be understood as referring only to the region with which I am most familiar—southern Mexico—while any conclusions expressed are mainly from the results obtained up to date upon the lands which I am developing in my own personal interest, and from such observations as I have made in traveling.

Regarding the limits of latitude within which the *Castilloa* rubber species may be grown, I should consider it a hazardous venture north of the twenty-third parallel, for assuredly the *Castilloa* will not endure any frost. As to elevation above sea level, I have rarely seen native trees much above 1200 feet, and in the humid tropical zone of Mexico they are found in greatest number and vigor between sea level and 1000 feet. This zone includes portions of the states of Vera Cruz, Oaxaca, Chiapas, and Tabasco. With few exceptions the climatic conditions necessary are found only upon the Atlantic or Gulf side. Here the temperature ranges in summer from 73° to 96° F., and in winter from 55° to 86°. The rain fall varies from 95 to 130 inches per annum, fully two-thirds of it falling between June 1 and November 1, the balance being distributed in light showers from the latter date to March 1, after which the dry season proper commences. Such, in brief, are the natural conditions under which this variety of rubber seems to flourish.

There has been some controversy concerning the question of planting in sun or shade. Lately a rather strong article was published by a resident of the Pacific side of Guatemala, taking the ground that trees suffered from sun exposure and gave but little sap. I think locality will be found to have much to do with this. It is well known that most of the Pacific coast of Mexico and Central America is hotter and drier than the Atlantic side at like elevations. My own observation has been that on the Atlantic side of the isthmus of Tehuantepec the tree grows in full sun with astonishing rapidity and vigor. Trees can be seen there that have attained a height of 10 feet in 2½ years from seed, have a diameter of 4 inches, and bleed copiously when incisions are made. It is proper to state that these results are in the case of trees planted in the best soils, rich loams, with ample drainage. Under such conditions trees of this age have flowered and borne seed.

It is true that a good deal can be said in favor of forest planting; that is to say, clearing away vines, saplings, and underbrush, leaving only the main forest standing, and planting the rubber seedlings wherever space permits. Following this plan, the expense of preparing the land for planting is much less; also weeds grow less rapidly in shade than in the open, on ground which has been burned; so that the expense of maintenance during the earlier years of cultivation would be less under forest conditions. On the other hand, trees grow much faster in the sun in the region referred to, and since one has to have some cleared ground for beans and corn crops to maintain the laborers on the estates—which crops can be grown

successfully among the young rubber plants—the additional clearing of the land, at least on a part of the estate, is not such a serious undertaking. Again, if the question be raised as to the future welfare of the trees as grown in the open sunlight, evidence exists in the hundreds of old trees that can be seen about the villages of Acayucan, Malota, and Oluta, and around the coffee estates, which have, for years, been standing in full sun without ill effect. Personally, I have been planting in both shade and open.

As to soils, the *Castilloa* can be met with in a state of nature in pure black loam, lighter sandy loam, alluvial soils, in red gravelly clays, and in dark soils mixed with gravel, though never in ill drained clay soils nor in swamps. The best soils are undoubtedly the richer loams, slightly sandy. Here, if the drainage be good, the *Castilloa* will be at home, and the summits and slopes of low undulating hills of this formation produce quite as good trees as the bottom lands.

In the case of trees in the open, 250 or 300 per acre meet the writer's idea for permanent growth, though in the beginning we are planting very close, from four to six feet, to shade the ground and keep the weeds down. We can thin out in the second, third, and fourth years as circumstances suggest, and perhaps we will get a little rubber from trees five to ten feet high that we may destroy, root and branch, to allow room for the development of the permanent trees. Individual experience leads the writer to think something very important may result from the experiments being conducted by Mr. John H. Hart, superintendent of the botanic gardens of Trinidad. As to treating the *Castilloa* as an annual crop, in the form of fields of seedlings to be pulled up and the sap extracted, I am not yet prepared to express any opinion in this matter, as mechanical difficulties in connection with extracting the sap suggest themselves to my mind. Tropical forest land, freshly cleared, cannot be plowed owing to the number of tough roots and fibers in it, and hand trenching with hoes, *tarpalos*, or spades is out of the question, as large areas would necessitate much more labor than could be commanded, and the mere sowing broadcast on the surface we have not found successful. Nursery beds are a different thing. In this case the ground is carefully spaded a foot in depth and well pulverized, the soil thrown up in beds to give ample drainage, the seed sown in drills several inches apart and lightly covered with soil. Seed sown early in June, promptly after harvesting, gave a stand in three weeks of fully 95 per cent. and, by November 1, stood a solid mass, 24 to 37 inches in height, with stems $\frac{1}{4}$ to $\frac{1}{2}$ inch thick. If such results could be obtained on a large scale, the yield per acre would be enormous. I am not aware that a machine has been devised to express and separate the sap from the macerated stems, leaves, and fibers.

Regarding the yield from trees under cultivation, there appears to be a great diversity of opinion. Careful experiments made by the writer, with cultivated trees at three years of age and with different sized trees in a natural state, indicate a very satisfactory yield, the average of which fairly establishes a production commencing with the sixth year and rising from a $\frac{1}{4}$ pound to 2 pounds during the succeeding five years, though this is far below the quantity given by many writers and planters. Some writers state that five years is sufficient time to wait before commencing to tap, while others recommend seven or eight. No doubt excessive draining of sap before the trees attain size

* This article has been written by request, in view of the constantly increasing number of inquiries reaching THE INDIA RUBBER WORLD in regard to rubber cultivation, by a gentleman who has been connected practically with tropical agriculture, in various parts of the world, for fifteen years past, and who is now established in Mexico with a view to devoting himself permanently to rubber.—THE EDITOR.

and strength would be injurious, but as there appears to be every probability of a long era of high prices, careful calculations show that a good profit can be made on a plantation which is made to begin yielding at five years, provided the average yield for the next five years is 1 pound per tree, even if the trees should be exhausted by that time. With 300 trees to the acre, yielding 1 pound each, at 40 cents (gold) per pound as the local selling value, the return for five crop years would be \$600 per acre, with a necessary investment not above \$80. Much higher figures, for both yield and prices, are calculated on by most planters, but, so far as the writer is concerned, if this estimate were cut in half by actual results, the reward for time and money spent would probably exceed in profit any other known agricultural enterprise.

Undeniably this culture is shorn of many of the vicissitudes attaching to other crops. Competition in production is a thing of the far distant future; the product is compact and of great value; transportation from well situated estates is very cheap, the gum is practically non perishable, and no known pests attack the *Castilla* trees.

It has been noted that the exports of rubber from Mexico for the last two years have increased, but this does not indicate a yield thus far from cultivation. The explanation is that under the stimulus of high prices the Indians have been tapping every tree they could find, selling the product to the local merchants at 50 cents per pound, Mexican money. This, however, is only hastening the end. It is quite probable that within three years the planters will commence exporting, as the result of close planting at the beginning necessitating the thinning out process, and we may expect that every ounce will be saved.

As the result of a year's exploration in Mexico the writer elected to establish himself on the Atlantic side of the isthmus of Tehuantepec and a subsequent residence of eighteen months seems to have justified the choice. The experimental stage may be considered well passed, ample evidence of which can be seen regarding the various cultures, including rubber, coffee, tobacco, vanilla, cacao, sugar, corn, rice, pineapples, bananas, some of which should always form a portion of the side products of a well ordered rubber estate.

The best rubber lands on the Isthmus can be purchased at prices varying according to location and amount of land desired. In blocks from 500 to 2000 acres, \$4 to \$7 gold; 2000 acres, \$3 to \$4; very large tracts, of say 50,000 acres and upwards, \$2.50. This schedule applies to lands accessible by river or rail. More remote lands can be had at figures slightly less. There are no government lands available that could be considered by the practical investor, and the remoter lands are more broken and less fertile. Land values in Mexico have advanced fully 100 per cent. in the past three years, owing to the general development going on by reason of the investment of American capital on the Isthmus during this time, estimated at \$3,000,000; the passage of the experimental stage in tropical culture as practiced there; the transfer of the Tehuantepec railway to the Sir Weetman Pearson Sons Co., Limited, of London, by the federal government and from the terms of a contract by which the Pearsons must complete certain harbor works and equip the railway line anew, all at an estimated expenditure of \$15,000,000. These facts may have no direct effect upon the growth of rubber trees, but they will affect the conditions of the purchase of Mexican lands as time advances.

The healthfulness of southern Mexico seems beyond dispute. Probably not less than a thousand foreigners from the temperate zone are located here, half of whom are engaged in planting. Facilities for travel within the country have been greatly improved of late. Labor is reasonably abundant, though no large

surplus exists, and wages are low, from an American standpoint.

It cannot be said that a new country, situated in the tropics, has no drawbacks as a place of residence for Americans. Society is limited, good English schools are non-existent, there are no churches but those of the Roman Catholic faith and only in the towns and villages, English is not spoken, there are no theaters, there is no winter as Americans understand it, and anything approaching modern convenience must be created by him who casts his lot here. The summers are not as warm as the heated term in the United States, but the period is much longer, though not very trying; needless to say, the winter season, so called, is superb. Reasonable care in avoiding excesses of all kinds insures the average of good health.

As to the selection of suitable lands, transportation facilities, topography, and character of soil should be considered. Notwithstanding the average high standard of fertility of the soils on the Atlantic side of the Isthmus, it would be improper to say that all is strictly first class, though I believe that less poor land in proportion to the total area involved will be found in this region than in any tropical country, of equal area, I have ever visited. Therefore, it would be best to investigate on the ground, either personally or by the aid of some competent and reliable party, than to purchase at long range anything that might be offered.

J. C. HARVEY.

RUBBER AT THE NEW YORK CYCLE SHOW.

THE rubber trade was not represented at the fifth national exhibition of cycles, automobiles, and accessories, held at Madison Square Garden, New York, January 20-27, to an extent comparable with the exhibits of tires made at the big cycle shows of an earlier date. There were 107 exhibitors, all told, against 130 last year. As for bicycles, the participation was slight by manufacturers outside of the Trust. This led the manager of a tire exhibit to remark: "Taking away the competition that used to exist between the big bicycle manufacturers robs the show of all snap and leaves it very dull, from our point of view." The leading automobile concerns were well represented, and the various types of vehicles shown appealed strongly to public interest. The public also showed much concern about any novel features in bicycle construction. There was not much new in the shape of tires, and especially in tires for motor vehicles, whereas some surprises might have been expected in this line.

The only exhibit made by the Rubber Goods Manufacturing Co., who have gone into tires strongly of late, was the "Kangaroo" bicycle tire, if exception be made of the American Dunlop Tire Co., who made, as usual, an interesting exhibit, under their own name. They showed detachable tires for automobiles as well as cycles.

The B. F. Goodrich Co.'s display was likewise prominent, including single tube and detachable tires, for both cycles and motors.

The Diamond Rubber Co. showed motor and cycle tires. The Kokomo Rubber Co. had cycle tires alone. The Boston Woven Hose and Rubber Co. exhibited "Vim" cycle tires. The Mechanical Fabric Co. also had an exhibit, as did the Straus Tire Co. The Consolidated Rubber Tire Co. exhibited solid rubber tires for light and heavy vehicles. The Manufactured Rubber Co., who have secured the American rights for the French Duscable motor tires, exhibited specimens.

There was no Morgan & Wright exhibit, no Hartford Rubber Works, no "G. and J.," and nothing from a lot of other tire concerns who formerly were prominent at the cycle shows at New York and Chicago.

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THE MARKET FOR AMERICAN RUBBER SHOES IN EUROPE.

LONDON, January 9, 1900.

TO THE EDITOR OF THE INDIA RUBBER WORLD: It appears, from recent official statistics, that the exports of American rubber shoes were larger for the last fiscal year than in any former twelve months since the manufacture of such goods was begun in Europe, and that the exports since July 1 last have been on a still larger scale. The cause may be found either in a growing demand for rubber footwear abroad, or in more active efforts on the part of the American interests involved, or both. Yet the total volume of exports in this line undoubtedly is far short of the possibilities, and I should like, from the standpoint of a native of the United States who has studied the matter somewhat on both sides of the Atlantic, to discuss in your columns some of the conditions which apply to the trade in rubber shoes, with a view possibly to interesting your readers both in America and abroad.

It has been usual to say that the custom of wearing rubber shoes has never become established in Europe. It may be less general in many countries than in the United States, but it is general enough to have led to an extensive production of such footwear by each of several firms in Great Britain, France, Germany, Austria, and Russia. The fact that these concerns find the business profitable, and that their aggregate production has shown a steady increase, proves that a demand exists; it remains for American manufacturers to determine how far they can share in this trade. As long ago as 1855, when the rubber shoe industry in America was on a very small scale as compared with its present extent, more than 1,000,000 pairs, valued at \$686,797, were exported from this country, and chiefly to Europe. But that was a result of systematic and persistent selling efforts. There was an immediate decline in this trade when some Americans began to manufacture rubber shoes in Europe, after which the American civil war came on, paralyzing many branches of trade. The war was followed by the unparalleled development of the new western states and the building up of an enormous new home demand, largely diverting the minds of Americans from the export business. Now that production in America has overtaken this increased demand, and manufacturers are again in a position to produce a surplus for export, the successes in the foreign trade in rubber shoes in the "fifties" may suggest the making of renewed efforts in this line.

There are several indications that rubber footwear is coming into wider use in Europe. Hitherto it has been almost the universal custom to have leather shoes made to order. The shoemaker was found everywhere, while the shoe store was practically unknown. Consequently there has been no uniformity in styles or shapes, and no standard sizes, which greatly added to the difficulty in fitting the European shoe with rubber overs. But now, not only is an extensive business being done in the export of American leather shoes, but American shoe machinery is being introduced on a large scale in Europe, the tendency of all of which is to bring about some such uniformity in shapes, styles, and sizes as has long prevailed in America. This fact alone is of great advantage in the sale of neat, close fitting rubbers, wherever made.

Another point is that, under the old system of custom work, leather shoes were heavier, as a rule, than the machine made shoes now coming in vogue. One reason for the production of

lighter shoes now is that light grades of leather are better adapted to machine work. Another is that with the continued improvement in the condition of the people in many sections, more attention is paid to the appearance of the goods worn, and neater shoes are in demand. At any rate, many people who formerly considered their leather shoes as ample protection for the feet in all kinds of weather, now are disposed to consider the utility of rubber footwear in winter. Besides, the utility of rubber shoes from a hygienic standpoint is now receiving more careful attention abroad than formerly, as a result of which considerations which long have appealed to Americans are now being brought for the first time to the minds of many foreigners. Thus not only is it becoming easier to fit European feet with rubbers of regulation sizes than formerly, but the need for such footwear is becoming more real.

The rubber shoes made abroad are mostly of a heavy type, prominent among them being the product of the great Russian factories at St. Petersburg and Riga. These goods are made largely for the roughest sort of wear, by people who do not care for style or fit or appearance to the same extent as these things are regarded in America. They certainly are not meant for the classes who, in America, are catered to in the "city trade" in rubbers. Any one who will watch the steerage passengers arriving in New York from eastern Europe during the winter months will find many of this class wearing the Russian made rubbers—shoes which look as if they might last a lifetime, and are worn with so little regard to fit that the same pair might be worn equally well by all the members of a family, and over any sort of leather shoes that it is possible to make.

The first impression which the light weight American rubbers have made in many parts of Europe is that they won't wear. American rubbers don't "wear" in New York when put on over leather shoes without a good "fit." Hence the importance, in building up a foreign trade, of seeing that buyers are properly fitted. The American rubber shoe manufacturers have gone to such lengths in trying to produce something for every possible demand at home that more than 6000 different lasts are commonly reported to be kept in stock by the combined manufacturers. Any approach to this degree of care in catering to the foreign trade would soon make it possible to supply rubbers to any European that would fit his feet. But there is another respect in which American rubbers don't "wear" in Europe. The light weight goods made here don't begin to last so long as the heavier Russian goods. The American who changes the style of his leather shoes with every season is content if his rubbers last through one winter. If ultra particular about his dress, he may buy more than one pair in a season, or even buy a new pair now and then in order to have rubbers that are fresh looking. But in countries where the unit of money is so much less than the dollar, rubbers at the current American prices seem to be too dear to be thrown away quickly. Hence the man accustomed to buying the heavy Russian shoes and wearing them for years would call a light weight American shoe "rubbish" and become disgusted if it wore out in less time.

It will be desirable, therefore, not only to look after the fit of rubber shoes for the foreign market, as well as at home, but also to offer heavy grades where such grades are in demand, instead of confining attention to the lighter goods for city

trade. In portions of Europe the wearing of rubbers—if they are worn at all—is more constant than in the United States, where they are put on only when it rains, or there is a snowfall. It is essential, for this reason, that the soles and heels be made of as durable material as possible. A shortcoming in this regard has often been complained of by people who handle American rubbers in Europe, and who are called upon to replace such goods when returned by dissatisfied customers.

An American who traveled lately on the continent heard in more than one place something like this: "Your American rubbers are rubbish; they don't wear long enough. We hear that they are sold in New York at 20 cents a pair, and that must be about what they are worth. But when they are sent over here 75 cents is charged for them. Is that fair?" The answer was that light weight goods, no matter how high in quality, must not be expected to withstand the same usage as the heavy Russian shoes; also that the 20 cent shoes were only small job lots, imperfect or out of date goods, the retailing of which for a few days by a department store or two did not affect the general sale of goods at 75 cents. In other words, the American shoes had not given way because they were "20 cent stuff," but because they were ill used, or because more was expected of them than was promised. But even if dealers can be made to see this, they cannot make the whole rubber buying public understand it all at once. This is one reason why the selling of light weight rubbers has been of slow growth. At the same time there has been a growth, and not confined to American goods. The leading British manufacturer advertises one brand as "the lightest shoe yet made," and the light weight of some German goods is pointed to as a recommendation.

The question of varnishes is sure to be broached whenever American rubbers are discussed in Europe. Although the rubbers first known there were of American origin, the European production has since become the standard, and the people now insist upon a certain glossy appearance, which American manufacturers would do well to keep in mind. The question of the touch or feel of the varnished shoe is also a matter in which American rubbers have not always given satisfaction. Complaint has also been made that, as a result of careless packing, rubbers come out of the cases sticking together, or with pieces of paper sticking to the varnish, with the result of giving the shoes an unfinished appearance. But all of these are matters which manufacturers ought to be able to remedy when once attention is directed toward them seriously.

The good demand which American rubbers enjoyed in Europe at an early day resulted from systematic painstaking efforts on the part of capable selling agents, who took up their residence abroad to make these goods known and to study the requirements of the people. The beginnings of the trans-Atlantic rubber shoe industry were made by some of these same men, whose success in building up a demand for such goods induced them to believe that the business could be expanded largely. It has grown to a certain extent, but time has brought about a divergence of the line of progress from that in America, until the production here and abroad has become distinctly different. But it does not follow that, by a renewal of the methods of the American trade in the beginning the latter could not again obtain a wide market in Europe, particularly in view of the changed conditions with regard to footwear in general that have been noted above. There is a certain sale of American rubbers to-day in France, the explanation offered for which is that the French production has not followed certain changes in taste, but is confined to the quality of shoes originally made there. Hence the lighter or more "stylish" Amer-

ican goods have found an opening. It is asserted that in every royal household in Europe where any rubbers are worn, the preference is given to American goods, and when this and other facts regarding the change in favor of light weight rubbers become better understood, it is not unreasonable to suppose that the Germans, for instance, who are quick to study conditions of trade, will undertake to cater to the new demand. The importance of prompt attention to this field by the American manufacturers would thus appear evident.

There appears to have been of late some increased activity on the part of the American rubber shoe people, in recognition of the facts that it is necessary to have their goods in any given market and to make the public familiar with them in order to insure sales; that possible buyers must be able to get such goods as they want, and not what may be thought best for them; and that conditions abroad are becoming more favorable than at some times in the past for the sale of such rubbers as are made in America. To illustrate, a single contract for foreign trade in this line recently under discussion related to one-half as many cases of American rubbers as the total average yearly sales for ten years past.

As regards prices, comparisons are not easily made. No such uniformity of business conditions exists in Europe, with its division into so many nationalities, as in this country, which is practically a single state. Nor does uniformity always exist throughout any one country. In the same German city one dealer may easily get 7 marks for a pair of rubbers which another dealer would be glad to sell for 3½. The same store will be found selling rubbers of competing Russian and German makes at different prices, showing that sales are not influenced by the question of prices alone. It certainly is not claimed that the yearly consumption of more than 3,000,000 pairs of Russian "galoches" in Germany is due to their being lower in price than the domestic products. The Russians have acquired a certain vogue in a particular line throughout eastern Europe, in spite of the competition of local manufacturers, which suggests the possibility of American rubbers gaining first place in some other grades, if the trade is directed intelligently, and yet without driving other producers from the field. The increased exportation of American iron and steel and machinery and textiles has not lessened the production of these commodities elsewhere, nor is it liable to. There is an increased consumption in prospect in every line, and for this reason alone it is not good policy for Americans who are in business to make money—rubber shoe manufacturers, in particular—to confine their energies to the home market.

J. C. L.

AMERICAN RUBBER GOODS EXPORTS.

RETURNS have now come to hand of exports of rubber goods from the United States for five months of the current fiscal year, the values being as follows:

MONTHS.	Beltng, Packing, and Hose.	Boots and Shoes.	All other Rubber.	TOTAL.
July.....	\$51,535	\$22,580	\$ 99,918	\$174,033
August.....	59,069	43,378	102,264	204,711
September....	42,858	34,233	122,959	200,050
October.....	52,643	34,894	106,223	193,760
November....	33,913	47,898	120,221	202,038
Total.....	\$240,018	\$182,983	\$551,585	\$974,592

The exports of rubber goods of all kinds for the corresponding five months of 1898 reached a total value of only \$706,848. The rate of increase is nearly 38 per cent.

THE INDIA-RUBBER INDUSTRY IN GREAT BRITAIN.

By Our Regular Correspondent.

MR. PEARSON'S book on rubber has been received with general favor in England, its utility to those who wish to know something of what has been recorded in the files of the patent office with regard to substitutes being beyond all question. Of course it is easier to find out what has been patented and to give a synopsis of a particular patent than it is to say exactly how far the results of its use have justified the laudatory notices which have as a rule preceded its appearance upon the market. It might have been wished that the author had been more in a position to speak definitely as to the success achieved by the various patentees, but I fully recognize the difficulties which surround the obtaining of such information. In saying this I have especially in my mind the substance termed Heveenoid, with which I had a good deal of experimenting on its attempted introduction into England some fifteen years ago. A considerable sum of money was spent by a leading British firm under the personal supervision of Mr. Gerner, the patentee, in order to put the substance to a practical test, but the results obtained were certainly discouraging. Considerable doubts were expressed by prominent chemists as to whether there was or could be any such body as sulphide of decane, which was said to be obtained by heating together turpentine, sulphur, and red lead, although according to a chemist's report which Mr. Gerner had in his possession this was clearly established as a scientific fact. Heveenoid involved the use of this body, as well as camphor and gum kauri, all of them being substances difficult to deal with on the mixing rollers. But quite apart from the doubt surrounding the chemical equations, there really was nothing about the resulting compound which made its addition to rubber either in large or small quantity much of a blessing. Goods that smell strongly of camphor cannot be recommended for many purposes, even if camphor was a cheap and easily obtainable body. It was stated that Heveenoid was not liable to injury by oil, as is India-rubber, but this contention was not borne out by the experiments which were made on mixtures of it with rubber. I should be interested to know if the substance ever made any headway in America, or if, after Mr. Gerner's death, which took place about ten years ago, anyone was found with sufficient enthusiasm to champion its cause. One thing that has struck me about many of these substitutes is that the patentee enumerates the various good qualities that pertain to them before he has real foundation for his statement: it is the rubber manufacturer who allows himself to be carried away by the glamor of the perspective who really works out at his own expense the necessary trials on the result of which the utility of the substance may be proved or disproved. Some firms in Great Britain are known to be more obliging than others in turning a willing ear to the statements of inventors and, in not a few cases, have they afterwards wished that they had previously tested the value of the documentary evidence submitted to them before entering on experiments involving, as a rule, a heavy expenditure in plants.

* * *

RUBBER IN
COTTON CARDS. I WAS talking the other day with one of our card-cloth manufacturers, and he expressed himself in no mild terms as to the state of affairs which prevented him raising the price of his goods,

although all his raw materials had advanced in price. Although rather a special business, and not usually associated with the rubber trade, yet it is one that properly comes under notice in these columns, as the cards contain a good deal of rubber, and the works use the washing rollers and spreading machines that are ordinarily found in rubber works. As there may be some who are not familiar with the term, I may explain that the cards which are composed of layers of cotton and wool are surfaced with a coat of fine Pará rubber, into which are inserted serried ranks of steel needles, the finished article being used in cotton factories in the process of carding. A new cotton mill requires some hundreds of pounds worth of these cards, and the English manufacturers had a very good time of it until America and Germany began to supply their own requirements in this line. At the present time the high price of Pará rubber is severely felt, as a cheaper rubber or substitute cannot be utilized in this manufacture. And now in addition to rubber both wool and steel have risen considerably in price, and yet, as my informant said, "We cannot get a higher price for the cards than we got five years ago." As there are so few houses in the trade one would have thought that some sort of combination or agreement as to price could be arranged, though of course it is possible that the prices at present obtainable may yet leave a sufficient margin for the manufacturers to make a living, and so render any extreme measures unnecessary. There is quite a large business done in collecting old card rubber, which is only to a slight extent decayed, and which when mixed with a little fresh rubber can be utilized by the rubber manufacturer as a superior reclaimed rubber. Its value depends of course on the degree of oxidation it has undergone; it is always liable in the cotton mill to come in contact with oil, which, it is hardly necessary to say, impair its vitality.

* * *

PACIFIC CABLE. WITH regard to the all-British Pacific cable, it cannot be said that there is any intense enthusiasm about the project in England, and it is no doubt a fact that the opposition of the Eastern Telegraph Co. to any scheme which threatens to assail their present monopoly is a factor in the situation which the promoters of the scheme cannot afford to ignore. Just at present Mr. Chamberlain is too much occupied with matters which transcend, in the eyes of Londoners at any rate, such affairs as Pacific cables, and there does not seem much likelihood of the scheme progressing further towards maturity for the next month or two.

* * *

CHANGES AT THE MACINTOSH WORKS. THE old-established firm of Charles Macintosh & Co., Limited, have had some alterations in the staff recently. Mr. Royle, the manager of the proofing department, in conjunction with Mr. Nadin, the manager of the town depot in Manchester, is reported to have decided to start in business on his own account. Mr. H. Elton, who has acted as secretary to the firm for many years, has obtained the post of secretary to the newly formed combine of calico printers which, after one or two abortive attempts, has now been successfully floated. The secretary's post is hardly likely to be a sinecure, as there is a mass of detail to be gone into before the books can be got into good working order. The condition that many of the smaller concerns had got into is evidenced by the fact that very few paid

any dividend last year, and in but very few cases has any good-will been paid by the combine for the purchase of the business. The board are going to be very strict, I hear, about the conduct of the business, and already one hears growls from erstwhile proprietors who, after being masters most of their lives, are now expected to turn up promptly to time and to account for their movements in much the same way as the average clerk. The people who will be mostly hit by the combine are the dry-salters, as the buying of chemicals will be conducted on strictly business lines from the manufacturers and there will be no margin for agents' profits.

* * *

RUBBER WAR THE unexpected length of the war in South Africa has necessitated largely increased contracts SUPPLIES. by the War office for ground sheets and kit bags. The close of the year saw the placing of contracts for the unprecedented figure of 100,000 ground sheets, and the terms enforcing rapid weekly deliveries are being found rather stringent by the contractors, as there is some difficulty in getting the requisite amount of cloth. These ground sheets, according to the War office pattern, for infantry, are about 6 feet long by 3 feet wide and of single texture, the rubber surface being composed of certain specified amounts of rubber, sulphur, and mineral. The ground sheet for the use of cavalry is of double texture, though why this is the case is not very easy to understand. Certainly after contact with dirty ground the rubber surface of the infantry sheet can be easily cleaned, while the cavalry pattern must remain soiled. Of course there may be some good reason for this difference between what is supplied to the two arms of the service, but it is difficult to avoid feeling that this matter, though a comparatively unimportant one, should not be ignored when the impending inquiry into the War office administration comes off. The kit bags are made of the similar double-texture material to the cavalry ground sheets.

* * *

DUNLOP PROFITS. THE recent report of the Dunlop Pneumatic Tyre Co., Limited, was not particularly gratifying to the shareholders, as no distribution of dividend was made, the profits being held over. The company has naturally been affected by the lowering of price which has been forced on their products, in harmony with the reduction which has taken place in the price of bicycles, and it is not easy to see how, with its immense capital, it can ever regain its former dividend-paying position. There seems to have been some little difficulty in getting the new rubber factory at Aston, Birmingham, into a paying concern, though it appears from the report that it is now being worked at a profit. The rubber works still trade under the name of Byrne Brothers, from whom it was taken over, though it is the sole property of the Dunlop company.

* * *

RUBBER WORKS CLOSED. AFTER a somewhat chequered career, in which the ownership and management have more than once changed hands, the Pendleton Rubber Co., near Manchester, have finally closed their doors, the machinery, under a compulsory sale, having been recently bought by the Velenite Co., Limited, for their new factory at Alfreton, Derbyshire. At the recent meeting of the Velenite Co., in Dublin, some rather pertinent questions were put to the chair as to how far rubber entered into the composition of Velenite, but no definite answer was forthcoming. It certainly seems clear that rubber machinery enters into the material of a Velenite works, though this fact, of course, is not sufficient to prove that the suspicions of those who incline to the belief that Velenite is mainly composed of rubber are well founded.

LITERATURE OF INDIA-RUBBER.

HERE has been published in Paris a "Manuel de la culture pratique et commerciale du caoutchouc" (Manual of the Practical and Commercial Cultivation of India-rubber), by F. Herbst. The work has been brought out to meet the demand for information on the subject upon which it treats, which has been greatly stimulated by recent experiments in rubber culture in the French colonies in Africa and elsewhere. It may be obtained from Vve. Ch. Dunod, 49, quai des Grands-Augustin's, Paris; price, 3.50 francs, bound.

IN CURRENT PERIODICALS.

GUTTA and Rubber in British North Borneo. By Henry Walker, Commissioner of Lands. [Reprint from *British North Borneo Herald*.] *The Tropical Agriculturist*, Colombo. XIX-5 (November, 1899.) p. 353.

The Collection of Caoutchouc on the Niger.=*La Gazette Coloniale*, Brussels. I-25 (December 10, 1899.) pp. 2-3.

Caoutchouc from *Ficus* Species in the North of Africa. By Charles Rivière, director of the experimental garden at Hamma, Algeria. [Results of experiments with many species, in some cases for twenty-five years, but mostly without pointing to commercial success.]=*Revue des Cultures Coloniales*, Paris. V-40 (November 5, 1899.) pp. 257-264; V-41 (November 20, 1899.) pp. 289-297.

Rubber and Planting in British Central Africa.=*The Tropical Agriculturist*, Colombo. XIX-6 (December, 1899.) pp. 406-407.

The Solution of the Rubber Problem in West Africa. By Dr. E. Henrici, of Costa Rica. [Relative to the rubber species suited for planting in Kamerun and Togo.]=*Der Tropenfänger*, Berlin. III-12 (December, 1899.) pp. 598-600.

French Guinea and its Agricultural Products [including Caoutchouc.] By P. Teissonier.=*Le Jardin*, Paris. August 20 and September 5, 1899.

Lagos Rubber Industry. [Official correspondence pointing to danger of the exhaustion of the *Kickxia Africana*.]=*Bulletin of Miscellaneous Information*, Royal Gardens, Kew, London. No. 147-148 (March-April, 1899.) pp. 29-35.

Rubber in Mexico. [In answer to a request for information about planting.]=*Advance Sheets of Consular Reports*, Washington. No. 627 (January 13, 1900.) pp. 1-2.

Central American Rubber. [Based on pamphlet of Señor José Horta on rubber in Guatemala.]=*Bulletin of Miscellaneous Information*, Royal Gardens, Kew, London. No. 153-154 (September-October, 1899.) pp. 159-164.

Caoutchouc Production in Central America. By Dr. Carl Sapper, of Coban, Guatemala. [A comprehensive summary of the native rubber supply and the prospects for rubber cultivation, with references to various authorities.]=*Der Tropenfänger*, Berlin. III-12 (December, 1899.) pp. 583-588.

Practical Experience with Regard to the *Castilloa* Rubber of Mexico. By Hermann Ludwig, of Atoyao de Alvarez, Mexico. [Describing two distinct species, and also a new process of coagulation.]=*Der Tropenfänger*, Berlin. III-11 (November, 1899.) pp. 548-549.

Several India-rubber Plants of Minor Importance. By Dr. Otto Warburg. [Continuation of a series of papers already noticed. Devoted to the rubber plants of secondary commercial importance in South America and the East Indies.] Two illustrations.=*Der Tropenfänger*, Berlin. III-11 (November, 1899.) pp. 524-531.

The Cultivation of Coffee and Caoutchouc in Brazil. By Ad. Van Laere.=*Revue des Cultures Coloniales*, Paris. V-39 (October 20, 1899.) pp. 249-251.

Proposed New Method of Exploitation of the *Manihot Glaziovii*.= *Journal Officiel de l'Afrique Occidentale Française*, May 11, 1899.

Interesting Report on the Cultivation of *Manihot Glaziovii*. By M. Mairot.=*Bulletin de l'Union Agricole Calédonienne*. No. 32.

Peruvian Rubber. [Correspondence from the British foreign office identifying "Caucho" as a product of *Castilloa elastica*.]=*Bulletin of Miscellaneous Information*, Royal Gardens, Kew, London. No. 149-150 (May-June, 1899.) pp. 68-72.

NEWS OF THE EUROPEAN RUBBER TRADE.

RUBBER GOODS PRICES IN GERMANY.

AT a special general meeting of the Central Verein deutscher Kautschukwaaren-Fabriken (Central Association of German Rubber Goods Factories) held on December 20, the subject of taking mutual action for the purpose of raising selling prices was discussed. Owing to the very considerable advance in the price of crude rubber and other crude and auxiliary materials, to say nothing of the higher rate of wages, an increase of prices was considered absolutely necessary. It was thought impracticable to fix minimum prices for single articles in the rubber line, owing to the variation in the quality of goods being too great, also owing to some manufacturers selling direct to consumers, and others to jobbers. It also did not appear feasible to fix a certain per cent. of advance, it being impossible to put all goods in the same category; also owing to the fact of some factories having become more prominent than others, in making an advance. On the other hand, the proposition for the manufacturers to conjointly issue a circular, advising their patrons of a 15 percent. advance in prices, to take effect January 1, 1900, was received with great favor. All the factories represented at the above meeting bound themselves to act in accordance with the above resolution, which it was also resolved to bring to the notice of those members of the association who were not present. This is the cloudburst, which has for some months past seemed inevitable and which, owing to the rise of all raw materials in the German market, could no longer be avoided.

AMERICUS.

Berlin, December 23, 1899.

SEMI-CENTENNIAL OF BUNGE & CO. (ANTWERP.)

ON December 31 the firm of Bunge & Co., celebrated their existence of half a century. The firm was established in 1850 by their sister-firm which had existed since 1814 in Amsterdam, and enjoys through the enviable management of its chief, Mr. Edward Bunge, the reputation of being one of the most prominent houses in Antwerp; a particularly favorable reputation being gained by their extensive importation of crude India-rubber. Being the sole consignees of the Congo Free State, as well as of a number of Belgian and French colonial companies, the imports of crude rubber from the Congo districts are received by them direct in Antwerp, where they are stored in immense warehouses in which they are assorted and marketed under competent expert supervision. Through its reputable transactions the firm numbers among its customers most of the leading rubber concerns of the Continent and America. Aside from the importation of crude rubber, the firm handles all products of the Congo State, such as ivory, etc.; also from Argentina, grain, wool, tallow, linseed, etc. Their branch houses in Buenos Ayres are of importance, and closely allied to the Antwerp house. The chief of the firm, Mr. Edward Bunge, fills a prominent position in the financial world, having led the firm to its present high standing by his far sightedness, financial ability and amiable personality; he is honored and esteemed by his employés and all who have business relations with him.

THE RUBBER TRADE OF HAMBURG.

HAMBURG is likely to become a more important market for crude rubber, in view of the establishment, at the beginning of this year, of a regular service, by the Hamburg-American line, between that city and the Brazilian ports of Pará,

Manáos, and Ceará. The German trade with these ports hitherto has been carried on in English ships, and German requirements in Pará rubber have had to be met in Liverpool. An early result of the new departure may be to transfer a good portion of the Liverpool rubber trade to Hamburg, which will be in keeping with the tendency in all lines of German commerce and industry to depend less and less upon foreigners for whatever it is possible to do through the employment of German capital and enterprise. Hamburg already has become an important center of the trade in African rubbers, and the rubber manufacturers of Germany will welcome an opportunity to obtain their supplies of Pará grades through more direct channels than at present.

"FROWODNIK" RUBBER FACTORY (RIGA.)

THE company operating this large Russian plant, in a letter to THE INDIA RUBBER WORLD, state that, on account of their increasing business, they are busy with the enlargement of nearly every department of their factory, involving much new construction. They are planning a full representation at the Paris Exposition of 1900, in connection with which they will publish a full description of the factory and its products. The Riga establishment is a large producer of "galoshes," the output of which was understood, some time ago, to be upwards of 15,000 pairs per day, which rate doubtless has increased. These shoes are sold not only in Russia but in most continental cities. The production of the company also includes a full line of other rubber goods. It was learned recently that an order for additional plant was being placed by the "Prowodnik" with one of THE INDIA RUBBER WORLD'S American patrons in the rubber machinery line. The name of the Riga firm in full is thus expressed, in German and French, respectively:

Gesellschaft der Russisch-Französischen Gummi-, Guttapercha,- und Telegrafen-werke in Firma "Prowodnik."

Société des Fabriques Russes-Françaises pour la production des articles de Caoutchouc, de Gutta-Percha, et de Télégraphie, sous la raison "Prowodnik."

PROFITS OF BALL MAKING BY MACHINERY.

THE annual meeting of the Eccles Rubber and Cycle Co., Limited (Eccles, Manchester), was held on December 30, when a dividend of 18½ per cent. was declared, and a substantial addition made to the reserve funds, which stand now at about £24,300. The company are interested in a large way in the manufacture of rubber playing balls by machinery. Recently they have been turning out a new seamless tennis ball, regarding which THE INDIA RUBBER WORLD is advised: "The tests that have been made with it have given such extraordinary results as to accurate rebound in playing that we are even now making preparations for a considerable extension of our works on this specialty alone." The capital of the company, by the way, is £60,000, instead of £100,000 as stated in THE INDIA RUBBER WORLD of December 1.

FIRE IN AN AUSTRIAN RUBBER FACTORY.

THE late fire in the Breitensee (near Vienna) works of the Oesterreichisch-Americanische Gummiwaarenfabrik-Actiengesellschaft originated through the carelessness of a workman who entered the transmission shaft alley, under the engine shaft, with an open light. A rule of the factory is that every room shall be cleaned on days when work is suspended. Into the space referred to flow all the waste greases and oils and benzine used in the manufacture of the rubber, with the result

that explosive gases are sometimes generated there. The workman's carelessness resulted in a terrific explosion, followed by a pillar of flame, which spread rapidly through the central section of the factory, where many rubber goods were stored. It being Sunday, few persons were present, instead of the highly trained fire brigade of employés always within call on week days, and the fire had gained great headway before the engine companies could arrive. The damage has been estimated at 150,000 florins, but the running of the factory and the filling of orders has not been materially interfered with. This is one of the principal plants for the production of rubber footwear in Austria. The Continental Caoutchouc-und Guttapercha-Cie. (Hanover) are understood to be largely interested in it.

INDIA-RUBBER INTERESTS IN RUSSIA.

THE importation of crude India-rubber into Russia during the calendar year 1898—the last for which official returns are available—while representing a larger money value than in any former year, failed to break the record as to quantity. The details for several years past have been as follows:

YEARS.	Pounds.	Value.
In 1891	9,674,800	\$1,974,000
In 1892	9,410,490	2,401,000
In 1893	10,038,100	3,222,000
In 1894	14,259,500	4,080,000
In 1895	12,165,700	3,600,000
In 1896	16,200,000	4,877,000
In 1897	14,572,280	4,707,446
In 1898	16,159,360	5,763,944

Yearly average..... 12,810,154 \$3,828,175

The exportation of Russian manufactures of India-rubber—mainly "galoches"—has increased as follows:

YEARS.	Value.	YEARS.	Value.
In 1891	\$637,000	In 1895	\$1,317,000
In 1892	843,000	In 1896	1,418,000
In 1893	1,131,000	In 1897	1,446,774
In 1894	876,000	In 1898	1,472,486

The exports of such goods may be classified as follows:

1897.	1898.
Galoches..... \$1,375,773	\$1,395,839
All other..... 71,001	76,647
Total..... \$1,446,774	\$1,472,486

The total value of rubber goods imported into Russia in 1898 was \$309,729, against \$315,450 worth in 1897.

ENGLISH DUNLOP TIRE PROFITS.

DURING the four years ending with September last the Dunlop Pneumatic Tyre Co., Limited, are reported to have earned profits as follows:

October 1, 1895, to March 31, 1897.....	£984,696
April 1, 1897, to March 31, 1898.....	464,161
April 1, 1898, to September 30, 1899.....	444,551
Total.....	£1,913,408
Total, at \$5 to £1.....	\$9,567,040

The fact that dividends commensurate with those earnings have not been disbursed to the shareholders has led to the assumption in some quarters that the management are preparing to strengthen their position, with the help of strong reserve funds, against the time when a reorganization of this heavily over-capitalized concern can no longer be put off.

The French Dunlop company showed net earnings for the year, but only the *interim* dividend was paid.

DR. DIEUDONNÉ RIGOLE, inventor of the process for extracting Gutta-percha from leaves, illustrated in THE INDIA RUBBER WORLD of May 15, 1894, died in December at Brussels, near which place he had lately been producing some Gutta-percha. The work begun by Dr. Rigole, it is reported, will be carried on by his recent associates, the product of the works having been approved by several French and German chemists as suitable for submarine insulation.

DEATHS IN THE RUBBER TRADE.

FOR a great many years the name of David Hale has been connected with the rubber business in and about Boston, and his death, which occurred on January 11, while not entirely unforeseen, came as a shock to all who knew him. Mr. Hale was not only in the rubber business the whole of his life, but was himself the son of a rubber manufacturer. Indeed, there are few rubber men living to-day who remember sturdy Aaron Hale and the factory he started in South Boston away back in the "fifties." He had three sons, all of whom went into the business which he founded, Alfred dying some twenty years ago, and George two years ago. Although the business for a number of years has been run under the name of Alfred Hale & Co., it was really the property of the brother who has just passed away.

In sketching the life of David Hale there are very few events on which to hang long or thrilling stories. He lived simply, dealt justly, had moderate ambitions, and left a comfortable fortune. He entered the business when only eighteen years old, and acquired an excellent knowledge of the rubber manufacture, besides which he was a thorough believer in good goods. He had a few specialties, such as diving armor, for instance, on which he made a reputation the world over. With his factory in South Boston, and his store on School street, Boston, where it has been for more than thirty years, he was wholly content, and was never tempted to branch out into the many new lines that attracted younger concerns. Mr. Hale never married, making his home with his two sisters, who survive him.

Personally, David Hale was a bluff, hearty, kindly gentleman, positive in his views, and very strong in his likes and dislikes. He was a great believer in the old fashioned uncompromising honesty, and, while having little to say about trade in general, he was a keen observer and kept well in touch with matters in his line.

Some two months prior to his death, Mr. Hale was taken ill with dropsy. He appeared to be getting better, when he was stricken with paralysis of the brain, from which he died. He was 66 years of age on October 21, 1899. The funeral services were held at his home at South Boston, representative men in the rubber trade attending. By his express wish, instead of being interred, the body was cremated.

Upon the announcement of the death of Mr. Hale, a meeting was called at the Boston offices of the Revere Rubber Co., on January 12, fifteen firms in the rubber business being represented. Mr. C. H. Arnold was made chairman, and Mr. George P. Whitmore secretary. The following committees were appointed: George P. Whitmore, to secure flowers; Henry C. Pearson, C. H. Arnold, and Charles T. Small, on resolutions; C. H. Arnold, C. I. Small, H. I. Conant, and Robert Josselin, to attend the funeral as representatives of the rubber trade, and to act as pallbearers. The following tribute was adopted:

WHEREAS, Death has removed from among us our friend and co-laborer, Mr. David Hale, the undersigned members of the rubber trade of Boston and vicinity, in token of their deep sense of bereavement, have adopted the following resolutions:

Resolved, That in the death of David Hale the rubber trade suffers a severe loss. Himself a pioneer in the business, the son of one of those who early saw the opportunities that the new industry afforded, his career, although not marked by transactions of great magnitude, is full of wholesome lessons to all who remain. Untouched by eagerness for great wealth or power, open hearted, instant in his denunciation of wrong doing, rigidly honest, free from commercial envy, his memory will long be cherished.

Resolved, That a copy of these resolutions be sent to his family.

The following firms were represented: Boston Belting Co., Revere Rubber Co., Hood Rubber Co., National India Rubber Co., E. H. Clapp Rubber Co., Davidson Rubber Co., Globe Rubber Co., Goodrich Rubber Works, Franklin Rubber Co., C. J. Bailey & Co., Conant Rubber Co., Reimers & Co., Cable Rubber Co., Stoughton Rubber Co., and George A. Alden & Co.

* * *

ARTHUR MANDEVILLE MINOTT, son of Mary K. and the late Joseph A. Minott, of Scotland road, South Orange, N. J., died on December 31 at Litchfield, Conn., from a complication of diseases, after a long illness. He was born in East Orange in 1872, and was educated in Princeton University. He entered the employ of the Goodyear Rubber Co. (New York), of which his father was secretary and treasurer, and at the time of his death was in charge of the branch of the company at Portland, Ore., where he had earned a reputation as an energetic business man. He married in 1896 Miss Florence Gilsan, daughter of the late Dr. Rodney Gilsan, and she survives him with one son. The body was brought to South Orange on New Year's day.

* * *

DAVID BENJAMIN SANFORD died January 5 at Highland Park, N. J., in his eighty-sixth year. He had resided for seven years past with his son, William Sanford, secretary and treasurer of the New Brunswick Rubber Co. Another son is George H. Sanford, of Chicago, head salesman for the same company.

SOME WANTS OF THE RUBBER TRADE.

[88] A N English manufacturer of insulated wire desires prices on (1) machine for taping pure India-rubber; (2) longitudinal rubber covering machine for putting on the two layers of compound rubber at one process; (3) taping machine; (4) vulcanizing oven for curing the same, after curing as above—for sizes 20 to 19/14 English gage.

[89] An inquiry comes from Russia from a firm who have heard that a substitute for Gutta-percha is manufactured in America and who would like to know where it can be bought.

[90] From Buenos Aires: "Would you kindly place me in connection with the manufacturer making the best wheel rubber tires in the States, for carriages of all kinds, able to stand the good and bad roads of this country? I read some time ago in your valuable review that some factory put that article on the market with a wonderful degree of solidity. I want their lowest price, discount, commission, etc., with a line of samples of the same."

[91] From England: "We shall be glad if you will kindly mention that besides our own manufactures we are always glad to take up and import any good packings and jointings for sale in this country, and that we shall be pleased at any time to hear from the manufacturers of American novelties in this connection."

LIBERIA has found a new source of revenue in an export tax on rubber which, it is said, will enable the government to resume the payment of interest on Liberian bonds, which have long been in default. The gathering of rubber is controlled by the Liberian Rubber Syndicate, an English concern.

THE latest news regarding the ill fated India-Rubber (Mexico), Limited, was a press despatch from the city of Mexico, dated January 6, stating that the company's safe in that city had been stolen bodily, together with all its contents, leaving no clue whereby the robbers could be traced.

NEW TRADE PUBLICATIONS.

THE MISHAWAKA WOOLEN MANUFACTURING CO. (Mishawaka, Ind.) have issued their catalogue for 1900-1901 of the "Ball Band" goods—a very full line of wool boots, rubbers made for lumbermen's socks, and "combinations"; also rubber boots, arctics, and "Perfection" goods. This is the company with which Emmett A. Saunders, so long engaged in the rubber shoe business in the East, is connected. The catalogue includes prices only on the rubber goods listed. [3½"×5¾". 52 pages.]

THE MATTSON RUBBER CO. (New York) issued lately a "Temporary Price List" of druggists' sundries, explaining that owing to the extreme and sudden changes in costs of raw materials, necessitating a change in costs of their finished goods, they have been unable to issue a list of permanent prices. [3½"×6½". 12 pages.]

THE GOODYEAR TIRE AND RUBBER CO. (Akron, Ohio) issue a handsome catalogue of the Goodyear pneumatic vehicle tires, for automobiles and carriages, containing illustrated descriptive matter and prices on an extensive line. [8¾"×6¾". 12 pages.]—They publish also a new catalogue of bicycle tires and bicycle sundries, including single tube (guaranteed and unguaranteed) and detachable tires, inner tubes, valves, and repair outfit. [4¼"×6". 28 pages.]

THE GRIEB RUBBER CO., INCORPORATED (Philadelphia), issue an illustrated price catalogue of an extensive line of rubber heels, top lifts, and tap soles, to which specialties they are devoting their factory at Trenton, N. J. [7¾"×5¾". 12 pages.]

CALENDARS.

JAMES BOYD & BROTHER (Philadelphia) issue a calendar for 1900 with ample space for memoranda for every business day in the year, in connection with tables of weights and measures, and other useful reference matter, and mentions of the firm's line of rubber goods, the whole forming a useful adjunct to the business man's desk.

=Thomas Christy & Co. (London) are sending to their friends in the rubber trade an artistic and elaborate "Shakespeare Calendar," illustrated in colors, and composed of six tablets, portraying scenes from as many of Shakespeare's plays.

=The S. S. White Dental Manufacturing Co., (Philadelphia), who are consumers of not a little India-rubber, issue as usual their dentist's office record calendar, with ample space for memoranda of daily engagements.

=Randolph Brandt (No. 38 Cortlandt street, New York) issues a pocket calendar and memorandum book, including several pages of printed matter valuable for reference, together with some account of Selden's patent packing.

ALSO RECEIVED.

PICHER Lead Co., Chicago, Ill.=Facts about Picher Sublimed White Lead. 8 p.

The Fairfield Rubber Co., Fairfield, Conn.—Price List [of Carriage Cloths.] 4 p.

THE United States consul at Newcastle, New South Wales, complains of the lack of interest shown by manufacturers at home, to whom he writes about opportunities for trade. Thus at one time he wrote to an American rubber manufacturer of a chance to sell \$1200 worth of the latter's products, and the letter remains unanswered.

THE valuation placed upon India-rubber gathered in British Central Africa, when accepted in payment of taxes, is 2s. 3d. per pound.

GROWING VOLUME OF THE AMERICAN RUBBER TRADE.

Official Statistics of Imports and Exports.

THE total exports of domestic manufactures of India rubber from the United States, during the fiscal year ending June 30, 1899, were somewhat larger in value than during the preceding year, but were still less than during the two former years, 1895-96 and 1896-97. These figures do not embrace such manufactures of India-rubber as may have been exported as part of electrical appliances, or in connection with clothes wringers, or in the shape of tires on bicycles shipped complete. The tables which follow, which it is possible here to present in advance of their official publication, through the courtesy of the chief of the bureau of statistics of the treasury department, at Washington, give not only the value of "boots and shoes" and "other rubber goods," and the countries of destination, for the last fiscal year, but they also indicate, with reference to each item—by means of *plus* (+) and *minus* (-) signs—whether the quantity or value is greater than during the preceding year.

It will be seen that the exports of rubber footwear were larger, by 24% per cent., in respect to number of pairs, and by 16 per cent. in respect to value than during the year preceding. In respect to both quantity and value the exports of rubber boots and shoes were greater during the last year than during any previous year since the record of 1,014,158 pairs was established, in 1854-55. The increase in such exports extended to each grand geographical division, except South America, in the case of which there was a falling off. While the total exports of rubber shoes to Europe was greater, the quantity sent to Great Britain was less, the increase being accounted chiefly for by larger shipments to Germany, France, and Belgium. In North America, there was an increase in exports of rubber shoes to Canada, in spite of the large production in that country.

There was also a gain in the exports to Mexico and Cuba. The largest shipments to South America were to Colombia, but these were smaller than during the year before. The exports to China were trifling in amount, but the increase of shipments to Japan brings up the total for Asia beyond the figures for 1898. Australasia and South Africa also took more rubber footwear than in the preceding year.

With respect to "all other rubber goods," there were smaller exports to Europe and Asia, with slight increases to each of the other grand divisions. Germany, France, and Belgium took fewer goods than during the preceding year, while Great Britain took more. The exports to Mexico were larger, and also to Cuba, reflecting the improved business conditions in the latter country. Argentina led the South American countries in respect to the amount of American rubber goods taken. There was a falling off with respect to Asia as a whole, and to Japan, the principal oriental customer for American rubber goods. Australia, Hawaii, and the various African colonies were larger buyers than in the year preceding.

The imports of foreign manufactures of India-rubber were considerably larger than for many years past, the increase being shown in respect to every country from which such goods have been received in any quantity. It is understood that hard rubber goods figure to an important extent in such increase. The imports of manufacturers of Gutta-percha, however, were smaller than last year.

The tables further give the details of the unprecedentedly large importation of crude India-rubber, showing the quantity and value for each country figuring in the customs returns.

EXPORTED TO—	Boots and Shoes.		Other Goods Value.	Total Value.
	Pairs.	Value.		
EUROPE:				
Austria-Hungary	816—	\$ 581	\$ 5,051	\$ 5,632
Azores, Madeira	924—	212	144	356
Belgium	11,325—	4,124	20,349	24,473
Denmark	8,800	4,408*	9,416	13,824
France	38,950—	15,009	27,302	42,311
Germany	123,261—	46,323	117,278	163,601
Gibraltar	—	—	11	11
Italy	1,397—	647	39,971	30,618
Netherlands	288—	91	22,732	22,823
Portugal	—	—	357	357
Roumania	—	—	1,188	1,188
Spain	—	—	2,260	2,260
Sweden and Norway	—	—	785	785
Switzerland	—	—	7,889	7,889
Turkey	8,712+	2,430	2,175	2,175
United Kingdom	197,399—	102,434—	380,336	482,776
Total, Europe	391,460+	\$176,259	3627,244	\$803,503
NORTH AMERICA:				
Nova Scotia, New Brunswick	9,385	\$17,935	\$ 21,808	\$ 39,743
Quebec, Ontario	25,436	8,018	285,466	293,484
British Columbia	2,460	5,529	25,305	30,833
Newfoundland, Labrador	3,139	2,001	3,417	5,418
Bermuda	34—	11	1,828	1,839
British Honduras	16—	42	251	293
Costa Rica	148	49+	3,590	3,639
Guatemala	—	—	5,033	5,033
Honduras	24—	14	1,477	1,477
Nicaragua	264	114	1,884	1,898
El Salvador	4,061	1,890	124,975	126,865
Mexico	1,414	2,172	2,271	2,271
Miquelon, Langley	2,932	1,356	53,609	55,048
Cuba	72	68	1,175	1,243
Puerto Rico	680	486	7,220	7,706
British West Indies	—	—	427	427
Danish West Indies	16—	10	215	225
Dutch West Indies	—	—	20	20
French West Indies	307—	164—	1,005	1,169
Haiti	432	209	5,314	5,523
Santo Domingo	—	—	—	—
Total, North America	50,420	\$40,116	\$545,565	\$585,721
SOUTH AMERICA:				
Argentina	12	\$ 55	\$19,780	\$19,825
Brazil	2,432	2,042	9,211	11,263
Chile	—	—	4,298	4,298
Colombia	6,094	2,488	6,316	8,804
Ecuador	628	395	9,740	10,125
British Guiana	54	110	1,841	1,951
Dutch Guiana	—	—	219	219
French Guiana	2	4	—	4
Peru	225	120	6,777	6,897
Uruguay	480	179	546	546
Venezuela	—	—	5,269	5,448
Total, South America	9,897	\$5,383	\$63,995	\$69,378
ASIA:				
Aden	—	—	8 42	\$ 42
China	300	400	2,763	3,223
British East Indies	—	—	4,526	4,526
Dutch East Indies	—	—	229	229
Hong Kong	—	—	4,272	4,272
Japan	15,620	11,056	46,519	57,675
Russia	250	580	187	717
Turkey	—	—	7	7
Total, Asia	16,170	\$12,046	\$68,548	\$70,591
OCEANICA:				
Australasia	14,297	\$21,644	\$67,863	\$89,527
French Oceanica	80	169	604	773
Hawaii	1,900	3,427	36,015	39,442
Samoa, etc.	—	—	61	61
Total, Oceanica	16,277	\$25,260	\$104,543	\$129,903
AFRICA:				
British	1,800	\$1,594	\$ 94,081	95,675
French	12	20	115	145
Portuguese	—	—	1,131	1,131
Liberia	—	—	13	13
Other Africa	60	168	9,267	9,425
Total, Africa	1,962	\$1,782	\$104,607	\$106,389
Grand Total, 1899	496,586	\$260,886	\$1,504,499	\$1,765,385
Grand Total, 1898	391,832	224,705	1,489,157	1,723,862
Grand Total, 1897	386,026	195,499	1,611,646	1,897,145
Grand Total, 1896	390,713	216,657	1,642,496	1,856,156
Grand Total, 1895	383,793	225,986	1,279,156	1,505,142
Grand Total, 1894	26,657	155,011	1,306,831	1,461,842
Grand Total, 1893	420,950	252,391	1,367,013	1,609,404
Grand Total, 1892	231,105	185,570	1,232,497	1,418,067

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THE INDIA RUBBER WORLD

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INDIA-RUBBER.

I.—Imports of Crude India-Rubber, by Countries.

FROM—	Pounds.	Value.
<i>Europe:</i>		
Belgium	2,356,967	\$ 1,875,644
France	862,007	658,663
Germany	1,887,161	1,034,046
Netherlands	211,142	112,049
Portugal	2,673,810	1,742,220
United Kingdom	10,735,226	6,956,970
<i>America:</i>		
British North America	3,657	2,035
British Honduras	38,658	22,140
Costa Rica	141,313	93,863
Guatemala	178,820	66,798
Honduras	183,752	86,234
Nicaragua	908,528	677,131
Salvador	74,361	30,519
Mexico	224,730	142,887
West Indies—British	30,069	9,086
Brazil	27,454,654	16,999,345
Chile	5,812	3,146
Colombia	936,463	451,538
Ecuador	809,782	393,862
Dutch Guiana	24,379	9,326
Peru	128,104	46,593
Venezuela	82,051	47,997
<i>Asia:</i>		
British East Indies	909,877	342,795
<i>Africa:</i>		
British Possessions	5,734	2,288
Total, 1898-99	51,063,066	\$31,707,630
Total, 1897-98	46,055,497	\$25,386,010
Total, 1896-97	35,574,449	17,457,578
Total, 1895-96	36,774,460	16,603,020
Total, 1894-95	39,741,607	18,353,121
Total, 1893-94	35,757,783	15,077,933
Total, 1892-93	41,547,680	17,809,239
Total, 1891-92	39,976,205	19,718,216
Total, 1890-91	34,712,089	17,866,290

II.—Imports of Crude India Rubber, by Customs Districts.

AT—	Pounds.	Value.
New York	48,645,348	\$30,221,338
Boston	1,756,426	1,031,311
New Orleans	573,601	399,157
Philadelphia	52,019	34,782
San Francisco	35,317	12,941
Mobile	7,098	4,219
Niagara, N. Y.	3,257	1,942
Total	51,063,066	\$31,707,630

III.—Exports of Crude India-Rubber, by Countries.

TO—	Pounds.	Value.
Belgium	876	\$ 437
France	182,877	134,356
Germany	138,576	104,380
Netherlands	3,959	1,035
United Kingdom	353,647	205,489
British North America	2,199,028	1,388,875
Brazil	3,523	1,978
Japan	4,000	3,912
Total, 1898-99	2,806,494	\$1,840,482
Total, 1897-98	2,717,418	\$1,462,973
Total, 1896-97	3,437,213	1,749,072
Total, 1895-96	2,891,072	1,448,941
Total, 1894-95	1,384,048	662,839

IV.—Imports of Manufactures of India-Rubber, by Countries.

FROM—	Value.
Austria-Hungary	\$ 402
Belgium	5,212
France	81,862
Germany	106,161
Italy	305
Netherlands	450
Switzerland	66
United Kingdom	178,788

[+ Indicates increase; — indicates decrease.]

Bermuda
British North America
West Indies
China
Hong Kong

Total, 1898-99

17
5,891
31
192
32
\$379,309

II.—Exports of Crude Gutta-Percha, by Countries.

To—	Pounds.	Value.
France	309,247	\$ 22,835
Total, 1896-97	297,953	
Total, 1895-96	294,228	
Total, 1894-95	315,902	
Total, 1893-94	309,308	
Total, 1892-93	338,435	
Total, 1891-92	371,580	
Total, 1890-91	334,645	
Total, 1899-90	\$379,309	

V.—Imports of Manufactures of India-Rubber, by Customs Districts.

AT—	Value.
Baltimore, Md.	\$ 1,028
Boston, Mass.	27,450
Newport News, Va.	1,210
New York, N. Y.	279,761
Philadelphia	33,426
New Orleans, La.	542
San Francisco, Cal.	6,237
Champlain, N. Y.	5,163
Chicago, Ill.	16,528
Minnesota, Minn.	1,049
Vermont, Vt.	502
All other sea ports.	1,050
Other interior ports.	5,363
Total	\$379,309

VI.—Exports of Manufactures of India-Rubber (and Gutta-Percha), by Customs Districts.

FROM—	Boots and Shoes.	Other Goods.
Baltimore, Md.	\$ 3,819	\$ 3,819
Bangor, Me.	981	5,118
Boston, Mass.	103,880	79,237
New York, N. Y.	131,058	940,557
Passamaquoddy, Me.	241	1,994
Philadelphia, Pa.	4,985	1,321
Corpus Christi, Tex.	4,985	6,054
Paso del Norte, Tex.	2,542	7,150
Arizona	7,911	21,607
Puget Sound, Wash.	8,936	110,864
San Francisco, Cal.	42,844	
Buffalo Creek, N. Y.	407	48,616
Chicago, Ill.	2,500	3,158
Detroit, Mich.	431	12,291
Huron, Mich.	6,294	
Memphremagog, Vt.	70	20,609
Niagara, N. Y.	70,718	
North and South Dakota	2,043	6,940
Oswegatchie, N. Y.	35	21,888
Superior, Mich.	137	1,104
Vermont, Vt.	2,131	58,271
All other ports.	416	3,857
Total	\$ 200,886	\$1,504,499

GUTTA-PERCHA.

I.—Imports of Crude Gutta-Percha, by Countries

FROM—	Pounds.	Value.
France	2,204	\$ 2,710
Germany	234,427	56,249
Italy	2,200	1,135
Netherlands	41,148	5,430
United Kingdom	175,425	80,729
Venezuela	16,753	3,998
British East Indies	46,780	11,926
Total, 1898-99	518,039	\$ 67,577
Total, 1897-98	636,477	\$159,381
Total, 1896-97	1,117,695	100,187
Total, 1895-96	6,845,884	178,513
Total, 1894-95	1,236,794	122,261
Total, 1893-94	498,763	84,340
Total, 1892-93	682,278	155,428
Total, 1891-92	308,239	114,874
Total, 1890-91	960,835	164,524

NOTE.—The larger imports in former years included Balata, Pontianak, etc., which are now no longer classified as Gutta-percha.

II.—Exports of Crude Gutta-Percha, by Countries.

To—	Pounds.	Value.
France	32,120	\$ 22,835
Germany	28,517	14,666
Netherlands	2,350	893
United Kingdom	10,677	9,661
British North America	79,673	84,175
Total	153,337	\$102,120

III.—Imports of Manufactures of Gutta-Percha, by Countries.

FROM—	Value.
Belgium	\$ 613
France	10,177
Germany	89,625
Netherlands	84
United Kingdom	13,468
Dominion of Canada	1,624
Mexico	1
Total, 1899-90	\$115,582
Total, 1897-98	\$156,997
Total, 1896-97	97,194
Total, 1895-96	85,231
Total, 1894-95	71,189
Total, 1893-94	30,654
Total, 1892-93	81,173
Total, 1891-92	61,276

IV.—Exports of Foreign Manufactures of India-Rubber and Gutta-Percha, by Countries.

To—	Value.
<i>India-Rubber:</i>	
Germany	\$ 51
British North America	21,104
Mexico	167
Hawaii	60
<i>Gutta-Percha:</i>	
British North America	41,512
Mexico	122
Total	\$63,016

RUBBER-SCRAP.

I.—Exports of Domestic "India-Rubber Scrap," or Reclaimed Rubber, by Countries.

TO—	Value, 1896-97.	Value, 1897-98.	Value, 1898-99.
Belgium	\$	\$ 300	\$ 2,704
France	23,975	28,682	9,606
Germany	2,115	22,970	30,702
Italy	...	8,179	6,890
Netherlands	...	184	463
Russia	2,600
Sweden-Norway	411	411	146
United Kingdom	89,152	98,788	110,747
Dominion of Canada	34,198	95,938	168,568
Japan	505	1,330	
Mexico	1,373	24,653	
Other countries.	314	314	138
Total	\$119,440	\$257,639	\$376,962

II.—Exports of Reclaimed Rubber by Customs Districts.

FROM—	Value.
Baltimore	\$ 1,266
Boston	17,550
New York	82,651
Philadelphia	82,242
Corpus Christi, Tex.	24,357
Champlain, N. Y.	60,020
Oswegatchie, N. Y.	3,195
Vermont, Vt.	104,511
Other Ports	1,171
Total, 1898-99	\$376,962

AMERICAN CONSUMPTION OF CRUDE RUBBER FOR 1899.

AS indicated by the table at the foot of this page the imports of crude India-rubber into the United States during 1899 were far in excess of the figures for any preceding year. The deliveries to consumers in the United States and Canada exceeded by 4051 tons the deliveries for the preceding year. These figures do not include Gutta-percha, Balata, or the cheaper East Indian gums—all of which are taken into account in the India-rubber statistics published by the government, and by some private statisticians as well. The long ton of 2240 pounds is the unit. From the same source is obtained this comparative statement of the prices of fine Pará rubber in New York and Liverpool, for ten years past:

YEARS.	New York Prices.	Liverpool Prices.
1890.	66 @ \$1.00	2 10½@4 1
1891.	60 @ .95	2 5 @3 7½
1892.	62½@ 74	2 8 @2 11
1893.	64 @ .79	2 10 @3 3
1894.	64½@ 73	2 9 @3 1
1895.	70 @ 81½	3 0½@3 4½
1896.	71 @ .85	3 0½@3 8½
1897.	79½@ 80	3 5 @3 9
1898.	82 @1.06	3 7½@4 5
1899.	91 @1.10	3 10 @4 7½

The figures in the next table, showing the extent of the world's visible supplies of rubber on January 1, 1900, have been derived from the Messrs. Morse's tables, though they are given on this page in pounds instead of tons, in order that they may be compared readily with former tables:

	Pounds.
Stocks in the United States.....	1,796,480
Pará grades.....	1,131,200
Central American and Caucho.....	264,320
African and East Indian.....	490,960
Stocks in Europe.....	4,256,000
Pará grades.....	1,094,600
All other	3,091,400
Stocks Pará grades at Pará and afloat.....	4,199,000
Total.....	10,251,480
Total, January 1, 1899.....	10,215,440
Total, January 1, 1898.....	9,920,960
Total, January 1, 1897.....	10,673,600

[This includes stocks afloat of all other than Pará grades.]

The next table analyzes the imports of crude rubber into the United States by grades, the figures denoting tons:

YEARS.	Fine Pará.	Coarse Pará.	* Cen- tral. & E. I.	African	Total.
1893.....	7,444	2,916	2,370	3,690	16,420
1894.....	6,839	2,614	2,309	2,881	14,643
1895.....	7,121	2,767	2,307	3,987	16,182
1896.....	6,515	2,706	1,807	3,305	14,333
1897.....	7,550	2,935	2,404	4,776	17,671
1898.....	6,804	2,935	3,003	5,878	18,620
1899.....	8,622	3,876	3,440	7,157	23,095

[* Including Caucho and Pernambuco.]

CONSUMPTION OF INDIA-RUBBER BY THE UNITED STATES AND CANADA (IN TONS).

[From the Annual Statistical Summary of ALBERT T. MORSE & CO., NEW YORK.]

DETAILS.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.
Imports to United States.....	11,103	13,103	13,033	13,554	12,942	14,263	16,152	15,347	16,420	14,643	16,182	14,333	17,671	18,620	23,095
Exports to Europe.....	147	116	201	268	116	231	982	491	714	391	324	500	250	150	300
Net Imports.....	10,956	12,987	12,832	13,286	12,826	14,032	15,170	14,856	15,706	14,252	15,858	13,833	17,421	18,470	22,795
Add Stock January 1.....	1,318	1,256	1,700	1,674	1,609	746	1,260	1,056	1,217	1,037	1,420	558	641	744	591
Total.....	12,274	14,273	14,532	14,960	14,435	14,778	16,430	15,942	16,923	15,289	17,278	14,391	18,062	19,214	23,386
Less Stock end of year.....	1,286	1,700	1,674	1,609	746	1,260	1,086	1,217	1,037	1,420	558	641	744	591	712
Deliveries to Manufacturers.....	10,988	12,573	12,858	13,351	13,689	13,518	15,344	14,725	15,886	13,869	16,720	13,750	17,318	18,623	22,674

The percentage of fine Pará as compared with the whole imports increased slightly in 1899. The percentage for six years has been: 45½ in 1893; 46½ in 1894; 44 in 1895; 45½ in 1896; 43½ in 1897; 36½ in 1898; 37½ in 1899.

RUBBER FOR DEEP SEA CABLES.

WRITING in *The Electrician* of the insulation of deep sea cables, Mr. Hubert L. Terry, F. I. C., an English authority, says: "It is important to note the two principal objections which have militated in the past against the employment of vulcanized rubber in place of Gutta-percha. These objections are the porosity of rubber under pressure—or indeed at atmospheric pressure alone—and the fact that the coating of rubber has hitherto been put on the cable in a jointed condition, and not in the seamless state in which the Gutta-percha covers the wires. These objections are of long standing, and have acted prominently in preventing the use of vulcanized rubber cables for deep sea purposes, except in comparatively short lengths, such as, for instance, in the case of cross-channel cables and port to port cables on the coast line of a country. Now, it is extremely doubtful if the porosity in rubber can be overcome, except by some drastic change in the methods of manufacture, but it is interesting to find that the erstwhile difficulty of putting the rubber on in a seamless condition has now apparently been overcome. According to THE INDIA RUBBER WORLD some seamless India-rubber cables were made recently by the Safety Insulated Wire and Cable Co., the rubber coating being put on by special machinery in a seamless condition, the result up to date being in every way satisfactory. This being the case, it presages an era of increased activity as regards the use of rubber insulation, and it may be predicted that to a great extent the two schools of thought, which have so long been in opposition on this matter of rubber for deep sea work, will cease to be antagonistic."

INSULATED WIRE FOR THE PHILIPPINES.

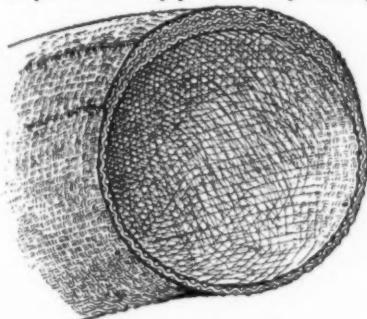
W. R. BRIXLEY completed the shipment, on December 21, from his factory at Seymour, Conn., of an order from the government for 100 miles of signal wire of No. 14 gage, covered with braiding and Kerite. This wire is to be used in the signal service operations in the Philippine Islands. The order received with instructions to rush, and the factory worked was thirteen hours a day to get it out in order to catch a transport sailing for Manila.

NEW GOODS AND SPECIALTIES IN RUBBER.

PRESTON PUNCTURE PROOF TIRE.

THIS tire, invented by J. F. Preston, is woven round in one continuous tube for its entire length, of as many plies as may be required to give it sufficient strength for the service required, whether for a bicycle, an automobile, or a fire engine. There are then added reinforcing strips of as many plies as may be required, from one to ten,

commencing at a point one-half way around the tire, and then, by decreasing the width of each reinforcement by from $\frac{1}{4}$ " to $\frac{1}{8}$ ", bringing it down to any width on the tread that may be required, forming a sort of an ellipse. The main tube and all the reinforcements are se-



PRESTON TIRE FABRIC.

curely woven together at one and the same time, making a complete and solid woven fabric, the different plies being firmly bound together in the operation by the threads. It is thus impossible to separate one ply from the other, all together forming a strong and indestructible tire. The tire is different from any other make in that most tire makers use strips of frictional cotton duck cut on a bias and then wound together, with nothing to hold the different plies of cotton duck together but the friction, and thus liable after a little wear to become separated and ruin the tire. Another advantage claimed for a tire made on this principle is that the thickened or reinforced tread of compactly woven cotton is thoroughly treated with a preparation which, in connection with the thickened tread of the tire, makes it puncture proof, and furnishes in connection with the rubber covering an extra heavy wearing surface where resistance to wear and puncture-proof qualities are most needed. The patents covering this tire are owned by The Preston Hose and Tire Co., incorporated in Maine, August 7, 1899, to make tires, fire department appliances, and air brake and steam hose for railways, involving the use of the same fabric. They have a factory at Everett, Mass., 50×100 feet, with a large office as an annex. It contains looms for making bicycle and vehicle tire fabrics, and specially constructed looms for making automobile tire fabrics. They are running also four looms for fire hose fabrics with a daily capacity of 1600 feet. The factory has facilities for rubbering pneumatic tires to the capacity of the looms now in place. The company are open also to accept orders for fabrics from other manufacturers of tires. Mr. Preston is the general manager and superintends all its work.

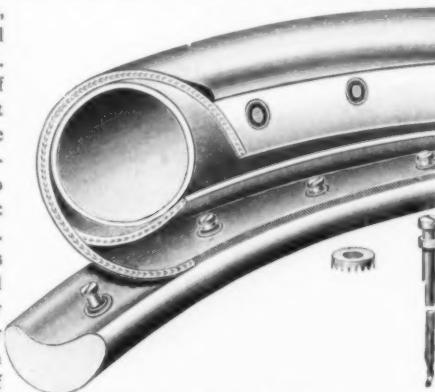
A NOVEL APPLICATION OF HARD RUBBER.

THE Harburg Rubber Comb Co., of Hamburg, have recently placed upon the market, under the name of "Ferronit," a new product of the rubber industry, this being a hard rubber nail. Such nails offer many advantages, being adapted for use under circumstances in which metal nails can only be used with great precautions. They are not attacked by acids or alkalies, are non conductors of electricity, and are entirely free from all magnetic influence. In the electrical industry they are applicable in many ways, such as in the construction of cases for

electrical accumulators, for the attachment of insulators, and for all connections in electrical circuits in which metallic nails might permit dangerous escape of current. Besides the ordinary form of nail, there are made of hard rubber various forms of hooks and staples for supporting electrical conductors, these being both very durable and also excellent insulators. The hard rubber nails are especially valuable for laboratory work, as they are absolutely without magnetic influence upon delicate measuring instruments, besides which no sparks can be emitted when such nails are struck with a hammer, so that they are well adapted for use in connection with the manufacture of explosives. THE INDIA RUBBER WORLD'S English correspondent writes: "From what I have seen of them, these nails come up to what the patentees claim for them in the matter of strength." The Harburg company are introducing the new article into England, and Mr. Winter, the manager of their London branch, is hopeful of doing a good business with electrical firms.

"B. & L." DETACHABLE TIRE.

THIS article represents a new departure in detachable double tube tires, since it is not held to the rim by grooves, beaded edges, or wires, nor is a special rim required. In each edge of the tire jacket or casing are eyelets securely fastened to the tire fabric and rubber. These eyelets are so placed that they may be hooked over the extension button ends of special spoke nipples. While

B. & L. DETACHABLE TIRE.
[Showing application of spoke nipples.]

the eyelets are large enough to slip over the nipple ends and thus accommodate themselves to slight variances in the drilling of the rims, the tire when inflated has no tendency to loosen from its fastening, because the pressure of the air causes the tire jacket to pull one way on the buttons from one side and in an opposite direction from the other, and also because considerable downward pressure toward the rim is exerted by the inflated tire. "The principal points of merit in these tires," the manufacturers state, "are the following: (1) They require no special rim; (2) they exert no strain on the rim; (3) they cannot creep; (4) they will not jump the rim; (5) they can be ridden deflated without leaving the rim; (6) they do not pinch the rim; (7) to repair a puncture it is necessary to open the tire only where punctured; (8) breaking off a section of the side of the rim does not affect the holding qualities; (9) the inner tubes require no locking." The tire is patented by Joseph A. Berger. He is now experimenting with a device to fasten this tire to the rim without the use of special nipples. If these experiments are successful, it will be possible to produce a detachable tire that may be applied to any rim. [Berger & Larson Tire Co., Nos. 152-158 Lake street, Chicago.]

GOODYEAR PNEUMATIC MOTOR TIRE.

THE wall of this tire is of all same thickness at all points in the section, as will be seen from the engraving. The fabric used is very coarse, and has a heavy coating of rubber between every two layers or plies. Consequently the tire is double the weight of some others in the market, and the cost is considerably greater. These points do not constitute an objection, however, in the minds of the manufacturers,

since the new tire is offered as being particularly durable, practically puncture proof, and capable of sustaining a heavy vehicle even when deflated. The manufacturers are committed to the superiority of the pneumatic over any other form of rubber tire for use on heavy vehicles, and to the idea that the tire must be made for the work required of it. [The Goodyear Tire and Rubber Co., Akron, Ohio.]

A NEW DUNLOP TIRE FEATURE.

ALL American Dunlop bicycle tires this season will embody a new feature in the shape of an addition, no change being

made in the standard of construction which has prevailed so long in their goods. A flap, consisting of a strip of cloth, is fastened to one edge of the outer cover and extends across the bed of the rim to

AMERICAN DUNLOP TIRE WITH PROTECTION FLAP.

the other edge of the cover, thus affording complete protection to the inner tube from puncture by protruding spoke ends. Its use prevents the inner tube from lying directly on the rim and makes unnecessary the use of a canvas strip cemented to the rim over the spoke heads. This flap is fastened to one side of the casing and is of sufficient width to lap over the other edge when the tire is in placed on the rim. The protection flap in no way interferes with the convenient removal or replacement of the tire in the customary manner. Its utility is readily appreciable. Another improvement in Dunlop tires relates to the method of securing the joining ends of the fabric. The new method is said to rid the joint of the common insecurity and to afford at that point as much strength as at any other, if not more. [American Dunlop Tire Co., Belleville, N. J.]

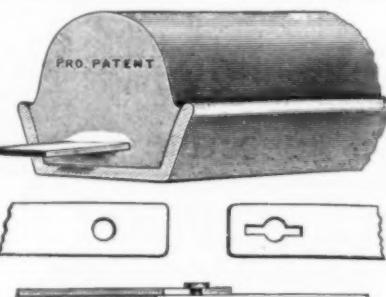


GOODYEAR PNEUMATIC MOTOR TIRE.

AN ENGLISH "STEEL BAND" TIRE.

THIS is a rubber tire designed for vehicles and motor cars. As will be seen from the illustration, it is not a perfectly solid tire, the opening through which the steel band passes being large enough to give some of the effect of a cushion tire, and some advantage in respect to light running is claimed on this account. The tire is fastened in the channel by a new patented device—not shown in the engraving—designed to prevent creeping, stretching, or slackness. The tire is held on by a flat band of specially tempered steel, which, when on the rim, is perfectly rigid, thus preventing all friction. The manufacturers hold that the rubber in tires which are wired on to the rim are liable to suffer from cutting, which is impossible in the tire here referred to. They make a point of compressing the rubber in the tire before placing it in the channel. In addition to a section of the tire, the illustration shows the details of the joint-fastening of the steel band. This tire may be fitted to any wheels already hooped with any section of the wired on type of channels. The price per pair for tiring and rubbering wheels three feet in diameter, with rubber in $1\frac{1}{2}$ inch section, is £4 16s. 6d. (about \$24.) For new wheels complete, the price per pair for the same dimensions is £6 12s. (about \$33.) [The Liverpool Rubber Co., Limited, 292 Vauxhall road, Liverpool, England.]

THE "STEEL BAND" TIRE.



THE "STEEL BAND" TIRE.

A HYDRAULIC TIRE INFLATOR.

To meet the demand for a device for supplying air in sufficient volume and pressure to fill the tires that require to be inflated in the busy season of an up to date cycle store, the "Hartford" hydraulic air compressor has been developed. It consists of a piston water motor driving an air compressor, which develops pressure at both up and down strokes. In other words, there are two cylinders with a common piston rod. One of these cylinders is supplied with water under the ordinary city pressure, supplying power to move the piston and compress the air in the second cylinder. The ordinary small air compressor, intended really for a beer pump, does not supply air sufficient either in pressure or volume for tire inflating and is not adapted to work economically. The "Hartford" compressor is made in sizes which have cylinders from 2 to 6 inches in diameter either in the motor or compressor, and thus a machine can be selected which will utilize the water pressure to the utmost and supply the air at the pressure and volume needed. Length of stroke, weight, and price vary with the size. It is constructed under the Spencer motor and other patents. [L. E. Rhodes Co., Hartford, Conn.]



HARTFORD HYDRAULIC TIRE INFLATOR.

ANOTHER RUBBER BATH CABINET.

RACINE, Wis., being the home of a prosperous rubber concern in the clothing line, it is quite natural that an article like the rubber bath cabinet should be manufactured there. The cabinet as seen in the illustration is practically a box with rub-

ber walls, the rubber being a strong though light fabric coated both outside and in. This box is fitted with a door through which the user enters, with an aperture in the top through which the head projects. When closed the cabinet folds into a six inch space. The outfit also includes an alcohol vaporizer and face steaming attachment. For people who have a defective circulation there is no question but that baths of this kind are wonderfully beneficial, although care should be taken afterward to avoid drafts, as there may be

danger of catching cold. [The Racine Bath Cabinet Co., Box Q, Racine, Wis.]

"SPIDER GRIP" RUBBER HEELS.

THE feature of novelty in these goods is the incorporation of a fibrous material with the India-rubber compounds, which,



SECTIONAL VIEW "SPIDER GRIP" HEEL.

while leaving the rubber resilient and making the heel springy in consequence, yet gives a resistance to the material which vastly increases its durability and causes it to hold its shape,

something that cannot be said of all rubber heels made. Since the use of these heels costs as little as the use of leather alone, it appears that one great drawback to introducing them into factories has been overcome, and that a very heavy sale is in prospect. One of the cuts herewith shows how the nails are driven, for attaching the "Spider Grip" rubber heel, the head of the nail resting one third the distance from the top. It is asserted that the peculiar fiber construction referred to above will absolutely hold the nail, no washers being required. The other cut illustrates the "Spider Grip" rubber top lift, men's large size—both cuts being on the scale of one half the real size of the goods described. They also show the trade mark adopted by the manufacturer. [The Grieb Rubber Co., No. 531 Market street, Philadelphia.]

"SPIDER GRIP" RUBBER TOP LIFT.

The Phipps conservatory, in connection with the Carnegie Institute at Pittsburgh, Pa., has grown some fine looking plants from seeds of the *Hevea Brasiliensis* and the *Castilloa elastica*, presented by Major J. Orton Kerby.



RECENT RUBBER PATENTS.

THE UNITED STATES PATENT RECORD.

ISSUED DECEMBER 5, 1899.

NO. 638,228. Rubber Heel Attachment for Boots and Shoes. Cara S. Ferguson, Columbus, Ohio, assignor of one-half to Henry C. Werner, same place.

638,374. Air Cushion. Richard Aronstein, Goldfield, Colo.

638,605. Tire for Wheels of Road Vehicles. Walter Swain and Leonard H. Swain, Bolton, England.

638,588. Combined Elastic and Pneumatic Tire. Louis de F. Munger, New York city, assignor to the National Wheel and Traction Co.

638,589. Combined Pneumatic and Cushion Tire. Louis de F. Munger, New York city, assignor to the National Wheel and Traction Co.

638,590. Combined Pneumatic and Cushion Tire, and Rim. Louis de F. Munger, New York city, assignor to the National Wheel and Traction Co.

638,628. Self Inflating Tire for Bicycles. James S. Everett and Arthur Kirkman, Wellington, England.

ISSUED DECEMBER 12, 1899.

638,684. Vehicle Tire. Calvin T. Adams, New York city.

638,738. Method of and Machine for Producing Hollow Rubber Articles. Thomas W. Morris, Chicago, assignor to Burton D. Knickerbocker, same place.

638,775. Process for Devulcanizing India-rubber. Albert E. J. V. J. Theilgaard, Copenhagen, Denmark.

638,997. Furniture Pad. Nicholas Stock, Kingston, N. Y.

639,064. Repair Patch for Pneumatic Tires. Charles F. Lancaster, Petoskey, Mich., assignor of one-half to Edwin A. Morford.

639,087. Composition for Rendering Garments Waterproof. George F. Newman, Rangitata, New Zealand.

639,100. Pneumatic Tire for Bicycles. Frederick W. Schroeder and William J. H. Carr-Boyd, London, England, assignors of one-half to C. D. Gill, same place.

639,104. Pneumatic Tire. A. B. Shaw, Medford, Mass., assignor by mesne assignments to the Morgan & Wright, Chicago.

639,105. Rubber Horseshoe. George W. Smith, Jamestown, N. Y.

639,148. Nursing Nipple. Charles Catlett, Staunton, Va., assignor to Christian Wm. Meinecke, Jersey City, N. J.

639,156. Elastic Tire for Autocars. Alfred Ducable, Asnieres, France, assignor by mesne assignments to Clayton E. Platt, trustee, Philadelphia, Pa.

ISSUED DECEMBER 12, 1899.

639,165. Elastic Tire. Rudolf Freysinger, Riga Sassenhof, Russia.

639,201. Elastic Tread Horseshoe. Ernst W. Stamm, St. Louis, Mo.

ISSUED DECEMBER 19, 1899.

639,399-639,400. Cushioned Pneumatic Vehicle Tire. Eleazer Kempshall, Newton, Mass., assignor to The Rubber Tire Co. of America, New York city.

ISSUED DECEMBER 26, 1899.

639,743. Horseshoe Pad. William S. Laycock, Sheffield, England.

639,832. Elastic Cap or Cover for Bottles, Jars, or Other Vessels. Henry C. Shearman, Providence, R. I.

639,846. Pneumatic Tire Fender. John Coan, Kansas City, Mo.

639,926. Rubber Substitute, or Artificial Rubber. Orazio Lugo, New York city, assignor by mesne assignments to The Manufactured Rubber Co., Camden, N. J.

639,927. Manufacture of Rubber Substitutes. Orazio Lugo, New York city, assignor to The Manufactured Rubber Co.

639,951. Pneumatic Tire. Benjamin F. Taylor, Bridgeport, Conn., assignor to the Taylor Tire and Development Co., same place.

639,998. Rubber-Tipped Lacing. Eleazer Kempshall, Newton, Mass., assignor to the Neverbreak Shoe String Co., Boston.

640,082. Vehicle Tire. Daniel E. Bennett, Melrose, Mass.

640,166. Elastic Tread Horseshoe. John Patrick, Chicago, Ills.

TRADE MARKS.

33,863. Certain Named Shoes. The Joseph Banigan Rubber Co., Providence, R. I. The word "Hunter." December 12, 1899.

- 33,877. Cement for Certain Named Purposes. Eclipse Cement and Blacking Co., Philadelphia, Pa. Essential feature, the head of a tiger. December 12, 1899.

DESIGN PATENTS.

- 32,017. Foot Guard for Interfering Horses. William J. McCurdy, New Brunswick, N. J., assignor to the Neverslip Manufacturing Co., same place. December 19, 1899.
 32,037. Interior Securing Band for Rubber Tires. George Meyer, New York city. December 26, 1899.

THE ENGLISH PATENT RECORD.

APPLICATIONS.

- 21,109. Carl Otto Weber and Isidor Frankenburg, Greengate Rubber Works, Manchester. Improvements in compound India-rubber. October 23.
 21,131. Moreland Micholl Dessau and the Wapshare Tube Co., Limited, London. Improvements in apparatus for use in the manufacture of pneumatic tires. October 23.
 21,187. Robert Adams Hall, Newcastle-on-Tyne. Improvements in pneumatic tires. October 24.
 21,253. Ernst Max Hubert Klein, London. Improvements in tire coverings. October 24.
 21,257. Miksa Hajos, Ferencz Konczol, and Ignatz Szecsenyi, London. An improved swimming belt with inflatable lining. October 24.
 21,289. Irvine Elliott, Glasgow. Improvements in and connected with tires. October 25.
 21,309. John Taylor, Dublin. An unpuncturable pneumatic tire. October 25.
 21,385. Thomas Deane, London. Improvements in or connected with pneumatic tires. October 26.
 21,420. Louis de F. Munger, 6, Lord street, Liverpool. Improvements in pneumatic or elastic cushion tires. October 26.
 21,421. Louis de F. Munger, Liverpool. Improvements in pneumatic tires and rims therefor. October 26.
 21,538. Frederick Mathew Groves, Shrewsbury. Improvements in the tires and wheels of motor cars and other vehicles. October 28.
 21,686. Lazar Mladen Serban, London. Improvements in tires for vehicle and like wheels. October 30.
 21,725. Charles Thomas Brock Sangster, Birmingham. Improvements in or relating to the fittings of pneumatic tires. October 31.
 21,868. Joseph Thomas Wicks, 6, Bream's buildings, Chancery lane, London. Improvements relating to pneumatic tires. November 1.
 22,412. Charles Manners, London. An improved tire for wheels of motor cars or other vehicles. November 9.
 22,273. Josef Gerson, London. Improvements in pneumatic tires. November 7.
 22,427. Charles Kingston Welch, London. Improvements in valves for pneumatic tires. November 10.
 22,653. Alfred Dugdale and Enoch Harding, Manchester. Improvements in wired on India-rubber tires, and relating to the construction of same. November 14.
 22,711. Henry Harris Lake, London. Improvements in rubber tires for vehicles. [Frank Richardson, United States.] November 14.
 22,714. Carl Straub, London. Improvements in plaster cement and the like. November 14.
 22,905. Hermann Loog and Richard Russell Gubbins, London. Improvements in detachable tires. November 16.
 22,911. Frank Schmitz, London. Improvements in or relating to elastic cycle bearings. November 16.
 23,049. William George Berry, London. Improvements in pneumatic tires and in the method of securing same to the rim. November 18.
 23,067. Robert Adams Hall, Newcastle-on-Tyne. Improvements in pneumatic tires. November 20.
 23,081. Charles Hubbard. Improvements in pneumatic tires. November 20.
 23,105. George Groyden Marks, London. Improvements in rubber tires for vehicle wheels. [The Rubber Tire Wheel Co., United States.] November 20.
 23,124. Shanker Abaji Bhise, London. Improvements in puncture-preventing devices for tires. November 20.
 23,437. Mikael Pedersen, Dursley. Valve for pneumatic tires, cushions, or the like. November 24.
 23,587. Alfred Ducastle, London. Improvement in elastic tires for autocars and other vehicles. November 25.

PATENTS GRANTED.—APPLICATIONS OF 1899.

- 14,915. Pneumatic Tire with Rubber Cover and Cork Between the Tire and Rim. Matthews, C. H., and Park, M. E., Newtown, Montgomeryshire. November 1.
 15,141. Method of Attaching Pneumatic Tire. Winchell, J. F., Springfield, Ohio, U.S.A. November 1.
 15,209. Rubber Heels. Jensen, P., Middlesex. November 1.
 15,279. Spring Tire. Lewis, G. H., Labatt, H. J. Blum, L., and Goggan, J., Galveston, Texas, U.S.A. November 1.
 15,511. Heart-Shaped Pneumatic Tire. Jones, F. W., London. November 8.
 15,523. Tire Made of a Series of Elastic Rings. Shone, W., Chester. November 8.
 15,569. Process of Obtaining India-rubber from Plants. Zurcher, O., Kingston, Jamaica. November 8.
 15,578. Manufacturing Single Tube Tires, and Covers for Double Tube Tires. Wood, E. G., and Armitage, E., Liverpool. November 8.
 15,920. Elastic Tire with Wire Tread. Lenton, L., Coventry. November 8.
 15,940. Non Puncturable Pneumatic Tire. Faulkner, A. C., and Smith, A. I., Fleet, Hampshire. November 8.
 16,102. Detachable Air Tube for Pneumatic Tires. Appleby, F. E., Normanhurst, near Birmingham. November 15.
 16,179. Method of Attaching Pneumatic Tires. Dennis, F., Finchley, Middlesex. November 15.
 16,438. Method of Attaching Pneumatic Tires. Lee, C., and Edlin, R. W., Birmingham. November 15.
 16,490. Method of Attaching Tire to Rim. Parker, W. H., Wolverhampton. November 15.
 16,620. Pneumatic Tire Protector. Fleming, E., Halifax, Yorkshire. November 22.
 16,728. Pneumatic Tire Protector. Thompson, W. P., Liverpool. [Scott, C. S., Cadiz, Ohio, U.S.A.] November 22.
 17,099. Pneumatic Tire Protector. Smith, M. H., Westminster. November 29.
 17,096. Inflating Valve for Pneumatic Tires. Magney, F., and Plange, E., Iserlohn, Germany. November 29.
 17,213. Pneumatic Tire Fastening. Thornton, J. E., Altringham, and Lea, J. P., Manchester. November 29.
 17,219. Pneumatic Tire Lining. Hubbard, A. E., New Cross, and Rand, F. R., Camberwell. November 29.

A NEW GUTTA-PERCHA PLANT.

TOUCHING upon the introduction of a new Gutta-percha producing plant from Northern China, now being cultivated in the colonial garden, Paris, United States Consul Atwell, of Roubaix, says that the discovery of a Gutta-percha producer that may be easily acclimated is a matter of great importance. He adds:

"The advantage of ready growth in a moderate climate is claimed for the plant reported to the academy. It is known as the *Eucommia ulmoides*, and the fruit is said to contain 27.34 per cent. of Gutta-percha of excellent quality. Gutta-percha has been produced almost exclusively up to the present by trees growing in the Dutch East Indies, and attempts to acclimate these trees in the French colonies have not been very successful. The rubber trees of Java require conditions that render their culture impossible in all but a few of the colonies." This plant has been described in the *Revue des Cultures Coloniales*.

THE INDIA-RUBBER INDUSTRY IN EUROPE.

From the Viewpoint of an American.

THIRD LETTER.

Number and Extent of the Factories at Manchester—Importance of the Waterproofing Branch—Foreign Trade—Orders from the Government—Railway Requirements in Rubber—Comparisons with the Trade in America—Wages.

NOT only is Manchester the most important center of the India-rubber manufacture in Great Britain, but some of the rubber factories here rank among the largest establishments in this busy hive of industry. The rubber industry has not been specialized here as in America, but, with the exception of some concerns in the waterproof clothing trade, each factory is open for orders for almost anything in rubber. The oldest concern, Charles Macintosh & Co., Limited, dates back seventy-seven years as a rubber factory, and is still abreast of the trade here, if not in the lead. Their name is familiar wherever clothing waterproofed with rubber is used, for not only has the "macintosh" become known by this name throughout the English speaking world—albeit the spelling is changed to "mackintosh" in the United States—but in some other countries, accustomed to naming things for themselves, instead of devising a special term for these goods, the trade has adopted the English designation of "macintosh." The visitor to the Macintosh factory is impressed with the idea that the proofing of cloth and the manufacture of garments still forms the most important branch of their business, though their list of products is not exceeded in length by that of any other concern in the world. One is conducted from floor to floor and from building to building, from the rooms where the various grades of cloth, manufactured in quantity by contract for the firm, is inspected and measured by automatic registering machines and waterproofed, to other departments where it is cut, many thicknesses at a time, by knives operated by machinery, and finally to the making up rooms. Labor saving appliances are the rule, including sewing machines of various types, and button hole cutting and finishing machines. The official of the company who was my guide pointed out that the firm's garments were now made with sewed seams, instead of being merely cemented together.

"Don't all the English firms in this line use seamed seams?" I asked, having in mind the American practice.

"I don't know, I am sure," was the answer.

* * *

ONE thing which the company were sure of was that the trade in waterproof garments had been increasing of late, not only in total volume, but in a better grade of goods as well. The same story was heard at the works of David Moseley & Sons, whose mackintosh department has expanded very largely within a short time. There I saw a large substantial new building devoted to their garment department, with further additions in prospect, while I was told that 120 apprentices had been taken on lately. At the Greengate works of Isador Frankenburg, where the mackintosh trade is the leading feature, and also by a member of P. Frankenstein's Sons, who are in this line exclusively, I was told that the garment business was constantly expanding, but in every case I was assured that the reason for the increase was not plain. But the manager of a mechanical goods firm offered the explanation that the growth of trade was due to the increasing variety of attractive fabrics now offered, water-

proofed, for ladies' wear, so that, whereas many ladies formerly bought mackintoshes reluctantly as a matter of necessity, they now bought them willingly, being unable to resist the wearing of goods so pleasing in effect. At the same time waterproof garments are now lighter in weight than formerly, and have less stiffness, and less odor.

The demand here for these goods is more general than in America, for which reason, as I mentioned in a former letter, the mackintosh trade has been described as the backbone of the British rubber industry. "There are sections of our country," said one member of the trade, "where every man you meet has a mackintosh, if not two or three." Apparently it rains oftener here than in the States, and the people do not stay indoors on account of the rain. There is a good demand for various forms of waterproofs for cyclists. When I mentioned the disinclination of Americans to go awheeling in the rain, I was asked: "Why, what do when you are invited out of town on your wheel, to dinner thirty miles away, and it happens to rain? Would you stay at home?"

* * *

THE demand for waterproof goods is by no means confined at home. In one establishment an order has just come in from the Falkland Islands; just why, no one knew. But it was an example of how orders will continue to come to a house which has long been in business and which has made a point of maintaining the quality of its goods, particularly where the house has exerted itself to get business abroad. Manchester is an important export center for a great many kinds of goods, and the leading rubber concerns here have representatives abroad, as well as branches in leading British towns, and wideawake commercial travelers all the time in pursuit of orders. The waterproof trade is not confined to mackintoshes, by the way. Wagon covers are in large use, including particularly covers for "goods wagons," as the English call their railway freight cars, which are much smaller than in America, and consequently more numerous for a given volume of traffic, and are for the most part open. A manufacturer showed me some wagon sheets which were being made to fill an order for farmers' use from Belfast, and expressed surprise at goods of such high quality being called for. The railway requirements are filled by the railway companies, once each year, inviting tenders for a year's supplies. The Messrs. Macintosh are making waterproof carriage rugs in great variety, some of them very handsomely figured.

* * *

IN Manchester I found a great deal of work in progress on orders for rubber goods for the army. On account of the exigencies of the war in South Africa, the formality of inviting tenders had to be waived, and orders were divided among leading manufacturers for the promptest possible execution.

"This sort of work is not particularly profitable," said a manufacturer, "but we consider it our duty as citizens to favor the government, even at the sacrifice of business which we might otherwise have taken on. The government offices are exceeding particular. Here, for instance, we are turning out an order for 15,000 ground sheets for the army in Africa, on specifications from the War office. If the eyelets which we are placing along the edges of these sheets should vary one-sixteenth of an inch from the position named in the specifications

the whole lot would be thrown on our hands, although the value of the article to the soldiers would not be affected in the least."

The larger military establishment in this country than in America, together with the vastly larger navy, make the aggregate of army and admiralty contracts a matter of no small importance to the rubber concerns, and this business is sought for, in spite of the red tape with which it is tied up, the complaints of incompetence on the part of government officials in charge of the specifications, and the rumored necessity of a manufacturer allowing the member of his staff who comes into contact with the government officials considerable freedom in the matter of expense bills for which no accounting is called for. But it looks well in a firm's advertisement to mention that they are contractors to her Majesty's government.

* * *

THE firms of Macintosh and Moseley, as mentioned above, manufacture all kinds of mechanical goods, though they are less active in the tire branch than at some times in the past. No rubber shoes are made in Manchester, however, and no hard rubber, and the business of druggists' sundries has not been developed here so largely as at Edinburgh, by the Silver-town people, and by certain firms, with headquarters in London, who rather make a specialty of the last named line of goods. The Macintosh firm do make a specialty of fine cut sheet. They have machines with which they can cut rubber to the thinness of 160 to the inch. But the room in which this work is done is one of the departments concerning which a member of the company's staff told me: "We take jolly good care that nobody sees inside of them."

In general the rule prevails of guarding rubber factory secrets. I was asked in one place: "What would be the possibility of my going through an American rubber factory, and getting an insight into the practice there?" I replied with another question: "Would you, in return, take an American manufacturer through your secret rooms?" "No, I would not," he said, decidedly.

* * *

THE Moseley works are conducted by three brothers, David A., James F., and Oswald, sons of one of the two brothers who during their lifetime constituted the firm of David Moseley & Sons. Mr. James F. Moseley spoke pleasantly of his two years' residence in America, in connection with the Mechanical Fabric Co. (Providence, R. I.), in which his firm had an interest. I believe that the Moseley firm made the first pneumatic bicycle tires in England, which were, of course, "Dunlops," and the Mechanical Fabric Co. are to-day an important factor in making the American Dunlop tire. The Moseleys took out a license early in the history of "Pegamoid," for applying the patents to the manufacture of machine belts, but all their interest has now reverted to the Pegamoid Co., whose headquarters are in London.

The Macintosh firm are large manufacturers of rubber toy balls. Near Manchester, at Eccles, a new company has gone into the making of balls on a large scale, with the aid of a machine on which they hold the patents. The managing director, Mr. Charles Coops, who spent several years in the Macintosh works, by the way, courteously showed me over the Eccles plant, but as the new machine has been described in THE INDIA RUBBER WORLD, it is not necessary to say more on the subject here. The Advertising Balloon Co., at Altrincham, near Manchester, make a specialty of the goods indicated by the title of the firm.

Isador Frankenburg has added to his large waterproofing business the production of insulated wire. Here I met Dr. Carl

Otto Weber, for some years the firm's managing chemist, who has done much by his work to stimulate an interest in the study of the chemistry of rubber. Mr. Louis Frankenstein, of the Frankenstein firm mentioned above, together with an employé of the firm, has just brought out a new spreading machine which is expected to insure a great saving in labor.

* * *

THERE are numerous other rubber concerns in Manchester and in nearby towns, but I have not space for a complete list. A point which I noted in common about them is that the offices of the management are in the same building with the factory, enabling the managing director to retain the closest possible communication with the heads of staff of the various departments, instead of maintaining, as in so many cases in America, a city office, while the factory is located in a suburb, or even in a town at a considerable distance. The practice of all these concerns with regard to the issue of trade catalogues and price lists is widely different from that of American concerns. I was prepared to see prices jealously guarded, but I did expect to see catalogues more freely distributed until I found that, in many cases, the latter do not exist. At Bradford-on-Avon there is a rubber factory on a considerable scale from which no sort of catalogue is issued. When I asked the manager of the company for the reason, he replied that they felt no need of a catalogue, since they made goods only on orders, and chiefly on specifications for railway supplies, under yearly contracts.

Manchester is also the seat of a large business, in the aggregate, done by firms each operating on a small capital, in the manufacture of mackintoshes, their proofing being done by the rubber factories. There is not a little complaint, at times, of the tendency of these garment making concerns to turn out cheap work, but I do not know that any attempt is made by the rubber concerns to check their business by declining to accept their orders for proofing.

* * *

WHILE the railways are large consumers of rubber—for buffers, drawbar springs, air brake and steam hose, wagon covers, pails, squeegees, etc.—they never buy in the open market. The old system obtains of having such goods made to order, each railway having its own specifications as to style and quality, and buying independently of every company, just as each railway manager orders his clothes from his own tailor without regard to what other managers may wear or what they may pay. Foreign rubber manufacturers seeking to supply this trade, therefore, must be prepared not only to come upon the ground and make a careful study of the situation, but to face the conservatism of the Britisher which leads him to hesitate to place his orders in a new channel. It is true that the railway companies advertise every year for tenders for the next twelve months' supplies, but the advertisements invariably conclude with the statement that "The directors do not bind themselves to accept the lowest, or any tender."

* * *

WHILE there is no general source of information in regard to wage standards here, I was told by employés of some large establishments that many girls are at work at 10 shillings (\$2.50) a week, say on waterproof garments, making balls, etc., and that they consider themselves fortunate if, after five years, they are advanced to 20 shillings a week, which is the most that they can hope to earn, save in exceptional cases. The possibilities open to men are somewhat greater, and yet not so much so but that surprise was expressed at the higher rate of wages in rubber factories in the United States.

My next letter will be written from London.

H. H.

NEWS OF THE AMERICAN RUBBER TRADE.

MONARCH RUBBER CO. (ST. LOUIS.)

THE removal of this company to their new building, Nos. 1009-1011 Washington avenue, was completed on the last business day of 1899. At that time their new rubber factory building was 85 per cent. completed, and the greater part of the machinery was in place. The company was planning at the last advices, to start turning out rubber shoes on January 22, with 150 hands at work. All the rubber machinery in the new factory has been supplied by the Birmingham Iron Foundry (Derby, Conn.). The plant includes also a 650 horse power Hamilton-Corliss engine and two Heine boilers of 250 horse power each. Water is obtained from an 8 inch artesian well. President Wagoner informed an INDIA RUBBER WORLD representative lately that the company contemplated the manufacture of mechanical rubber goods after getting their shoe factory well under way.

CHANGES AT THE BRISTOL FACTORY.

GEORGE SCHLOSSER ended his duties as superintendent of the National India Rubber Co.'s factory (Bristol, R. I.) on Saturday evening, December 30, and left during the following week for Hudson, Mass., where his skill and experience will be devoted to the success of the Apsley Rubber Co., in which he is to be financially interested. He had filled the position at Bristol since October 25, 1895, with signal ability. A. L. Comstock, superintendent of the American Rubber Co.'s factory (Cambridgeport, Mass.), took charge at Bristol on January 1. To the foreman he said that he was in charge temporarily, with H. H. Shepard, and that there would be few if any changes. Mr. Comstock will divide his time between the two shops until April 1, when a permanent superintendent at Bristol will be elected. Mr. Rice, assistant superintendent at the factory has resigned, to join Mr. Schlosser at Hudson.

CONCORD RUBBER CO.

THE Boston offices have been removed to a better location, No. 14 Lincoln street and No. 122 Summer street. Here are the offices of John F. Wheeler, sample and salesmen's rooms, and the private office of President W. D. Brackett. The factory at Concord Junction, Mass., has been turning out 1500 pairs of rubber shoes per day.—This company is mentioned as having joined a movement, inaugurated by United States Consul General Dickinson, at Constantinople, to open there a permanent exhibition of American manufactures suited for Turkish trade, and also for Greece, Egypt, the Balkan States and Southern Russia.

MODEL RUBBER CO. (WOONSOCKET, R. I.)

A LETTER TO THE INDIA RUBBER WORLD early in the month stated that the making of shoes had begun. It was hoped soon to get the daily ticket up to 2000 pairs, after which they would endeavor steadily to increase the output until it reached 5000 pairs. E. H. Cutler, selling agent, was about to start out with samples. A price list has been issued of snow excluders, arctics, self-acting goods, overs, croquets, light footwear in bulk, and fine dress footwear specialties in cartons. The cover bears the legend "Not Made by a Trust."

MAY HAVE TO MANUFACTURE RUBBER SHOES.

THE manager of one of the felt boot companies, in sending a subscription for THE INDIA RUBBER WORLD, writes: "You are doubtless aware that the action of the rubber trust the past two seasons has been such as to almost prevent the sale of wool boots except in combination with the rubber. This has

made it necessary for us to be posted on rubbers, and, if continued and carried further, may compel us to go into the manufacture of rubber shoes."

UNITED STATES RUBBER CO.

THE board of directors on January 4 declared the second quarterly dividend of 2 per cent. on the preferred stock, out of the net earnings for the fiscal year beginning April 1, 1899. Also, the third quarterly dividend of 1 per cent. on the common stock, for the same period. The dividends were payable on January 31, to stockholders of record on January 15. The business of the company, up to date, is stated to have been larger than for the preceding year.

THE RUBBER SHOE FACTORIES.

THERE was a general resumption of work in the factories of the United States Rubber Co.—after the shutdown for the holidays—on Thursday, January 4. The hands in the mill rooms returned to work on Tuesday, and the employés in the other departments from time to time, until the factories were in full operation again. The two factories of the Boston Rubber Shoe Co. started up on New Year's day with about 4500 persons employed. The Woonsocket Rubber Co.'s factory at Woonsocket closed only for the two holidays. The United States factory at New Brunswick remained closed until January 17. The various companies are reported to be well supplied with orders.

AUCTION SALE OF RUBBER SHOES.

FIFTY thousand cases of rubber shoes will be offered at auction this day by Johnson, Moody & Co., at No. 606-608 Atlantic avenue, Boston, on account of the United States Rubber Co. and the Boston Rubber Shoe Co., embracing imperfect and out-of-date goods of all the leading brands manufactured by these companies. By postponing this annual sale from the customary date in November, the manufacturers have avoided the ground for complaint from retailers which existed so long as the market was flooded with cheap auction goods at the beginning of the season. The sale will be conducted, as usual, by F. H. Nazro, the veteran auctioneer.

G. & J. TIRE CO. (INDIANAPOLIS.)

THE Gormully & Jeffrey sales department of the American Bicycle Co. (Chicago) have disposed of their G. & J. tire business, including patents, to the new G. & J. Tire Co., of Indianapolis. The latter was incorporated under New Jersey laws, November 17, 1899, with \$1,000,000 capital, the incorporators being Benjamin J. Downer, Frederick Stewart, and John E. Fryer. The G. & J. tires have been manufactured principally by the Indianapolis Rubber Co., which, after having been acquired by the American Bicycle Co., has become the property of the Rubber Goods Manufacturing Co. The new corporation announce that they will devote their attention exclusively to manufacturing and marketing G. & J. detachable bicycle tires. The Gormully & Jeffrey company are still prepared to supply G. & J. steel and wood rims; also, valves, pumps, and repair kits.

LAMBERTVILLE (N. J.) RUBBER CO.

EACH married employé, as usual, received a fat turkey as a Christmas present, while the unmarried ones received each a subscription to the local library or to a magazine, or some other useful present. This has been the custom of the company for thirty years, and one which is much appreciated by the employés.

DIAMOND RUBBER CO. NOT FOR SALE.

RELATIVE to a report published in the newspapers, and about which THE INDIA RUBBER WORLD made an inquiry of this company, they write: "We have issued no statement as regards any proposition we may have received from the Rubber Goods Manufacturing Co., and further, regarding any rumors which may exist, we can only say that they are without foundation and have no probability whatever, nor do we wish to sell our property."

The company are making extensive additions to their plant, of the most modern machinery, besides which electric motive power is being substituted for steam.

RUBBER TRADE IN CHICAGO.

THE *Inter Ocean's* trade review asserts that sales of rubber goods in Chicago during 1899 aggregated \$60,000,000, an increase "over the preceding big year" of 20 per cent. The increase is attributed to the improvement in business generally, and also to the increasing use of rubber tires on carriages and to the introduction of automobiles. The manufacture of rubber goods in Chicago is stated to have increased 25 per cent. over 1898. The production of tires of all kinds in Chicago is set down for \$10,000,000. The manufacture of rubber shoe heels is mentioned as an important item. The output of sporting goods was larger than ever before. While certain lines of druggists' sundries are still imported into Chicago from France and Germany, goods in the same line are manufactured for export to a considerable extent, some going to the two countries named.

CHANGES AT PEORIA.

THE rubber machinery of the Peoria Rubber and Manufacturing Co. (Peoria, Ill.), as already stated in these pages, is to be consolidated with that of the India Rubber Co. (Akron, Ohio), as a result of the sale to the Rubber Goods Manufacturing Co. The Peoria bicycle tire business also goes with it. "We have, however," says a letter to THE INDIA RUBBER WORLD, "retained the vehicle tire business, and think by spring we will have another factory running on vehicle tires. This is now our opinion, and as soon as we are located and running the usual announcements will be made." The company control a special form of rubber vehicle tire, which was described fully in THE INDIA RUBBER WORLD of May 1, 1899. There have been recent newspaper reports to the effect that efforts were being made at Ottawa, Ill., and Toledo, Ohio, to secure the location of the Peoria business. Monroe Sieberling, president of the company, already has other manufacturing interests at Ottawa.

AMERICAN INTERESTS AT MANAOS.

AT a meeting of the stockholders of the Manaos Railway Co., at No. 30 Broad street, New York, on January 16, the following directors were elected: Anthony N. Brady, Charles R. Flint, F. H. Hebbelthwaite, E. C. Converse, Frederick Stewart, John W. Scott, W. Douglass Walker, W. W. Ladd, Jr., and A. J. Moxham. The company have established an electric railway in the important rubber center, Manaos, on the upper Amazon, which is now in operation, while additions to it are being built. The United States consul at Pará, in several recent reports, has referred to Charles R. Flint as interested in various enterprises at Manaos.

A GOOD RUBBER MACHINERY BUSINESS.

A. ADAMSON (Akron, Ohio) has completed lately some additions to his machine works which more than double their former capacity. The additions include a new foundry, with ten-ton cupola, and an erecting room, with a fifteen ton traveling crane. The main new building now accommodates the offices, which are spacious and handsomely furnished. Mr. Adamson's interest in the rubber industry began about seven years

ago, when he was called upon occasional repair jobs in nearby mills. He began to receive small orders for molds and dies, which business has grown until he is now the largest maker in the United States of these articles, besides supplying machinery for the rubber trade.

RUBBER GOODS MANUFACTURING CO.

THE first annual meeting of shareholders will be held at the registered office of the company, No. 60 Grand street, Jersey City, N. J., on Tuesday, February 13. Only shareholders of record of January 23 will be entitled to vote.

Charles R. Flint is reported by the New York *Journal of Commerce* as having earned during the business year ending January 1, 1900, "probably over \$1,250,000," not including the business done by the tire companies recently acquired. The capital of the company is thus stated:

	Preferred.	Common.	Total.
Authorized.....	\$25,000,000	\$25,000,000	\$50,000,000
Original issue.....	6,196,600	11,840,000	18,036,000
Issued to date.....	7,446,600	14,840,000	22,286,000

These figures would indicate \$1,250,000 in preferred shares and \$3,000,000 in common as the price paid for the tire companies lately acquired.

The company have acquired an important interest in the Munger Vehicle Tire Co., the incorporation of which, to manufacture the pneumatic automobile tire patented lately by L. D. Munger was noted in the last INDIA RUBBER WORLD. It is understood that these tires will be made at the Hartford Rubber Works.

The trustees of the holders of the 6 per cent. mortgage bonds of the Mechanical Rubber Co. announce their desire to expend \$40,402.99 in the purchase of bonds of said issue, bids to be received by the Knickerbocker Trust Co. (New York) up to February 1. Coupons due on these bonds January 1 were advertised as payable on and after that date, and also on the 6 per cent. mortgage debentures of the New York Belting and Packing Co., Limited.

THE FIRE RECORD.

THE grinding and cementing department of the Apsley Rubber Co. (Hudson, Mass.) was damaged by fire on January 9, to the extent of \$4000.

=A fire in the Harburg factory of the Vereinigte Gummiwaarenfabriken Harburg-Wien, in the latter part of December, though doing considerable damage, was extinguished without calling out the fire department, thanks to the admirable precautionary measures observed in the works of this great company.

=A fire in the drying room of the Fairfield Rubber Co. (Fairfield, Conn.) on January 3 caused a loss of about \$1000. The Fairfield fire department rendered prompt assistance, besides which the headway of the flames was lessened on account of the room being separated from the main building by a heavy brick wall.

=Fire broke out in the cutting room of the Lycoming Rubber Co.'s factory (Williamsport, Pa.) on the morning of January 8, and destroyed about \$15,000 worth of partially manufactured goods, besides damaging the building somewhat by weakening floors, etc. Although Mayor Williams—the treasurer and manager of the company—is pleased at the work of the city fire department, he attributes the saving of the building to the efficiency of the company's \$10,000 fire protection system. Twenty-seven caps were melted off of the automatic sprinklers, and consequently as many streams played upon the flames. The factory resumed work on January 16.

=B. F. Saylor, who was mentioned lately as having become engaged in reclaiming rubber at Norwood, Mass., has since

been burned out there, and is now getting established at East Taunton, Mass.

=M. Wertheimer & Co., rubber clothing manufacturers, No. 403 Market street, Philadelphia, were damaged by fire on January 13.

=A press despatch from Wilmington, Del., of January 10, says: "The large plant of the Delaware Hard Fibre Works, in the western part of the city, caught fire late to-night, and at midnight it was stated the factory would be destroyed. All the fire companies are on the scene. The estimated loss is \$125,000; covered by insurance."

=The Bishop Gutta-Percha Co. (Nos. 422-426 East Twenty-fifth street, New York) were damaged by fire on December 29, when the large seven story building adjoining them on the east was burned. The wall fell upon the eastern end of the Gutta-Percha factory, demolishing about one-third of the roof, crushing both the steam engines, and severely damaging a large portion of the machinery. The company were well insured, but they will lose considerable on account of the advance in cost of machinery and in delay. One-third of the factory will have to be rebuilt, while the repairs to the engines will require several weeks. Several competitors offered to help fill contracts, so that the company will lose nothing in this way.

INDIANA INSULATED WIRE AND RUBBER.

THE annual meeting of the Indiana Insulated Wire and Rubber Co. was held at Marion, Ind., on January 16. The officers elected were: J. H. Seiberling, president and general manager; N. Seiberling, vice president; A. S. Seiberling, superintendent; S. H. Miller, treasurer; R. E. Lucas, secretary. The usual dividend was declared. The factory has 100 hands employed, of whom 60 have been working overtime of late. The Thorsen Co. (Chicago) will continue to handle their bicycle tire output, having contracted already for 60,000 pairs for this year's demand. An electric lighting plant has been put in.

WESTERN SHOE JOBBERS' BANQUET.

THE second annual banquet of the Western Association of Shoe Jobbers, in Chicago, on January 23, concluding the annual convention of that organization, was eaten at tables beautifully decorated with flowers, several designs being in the form of rubber boots and shoes. Leaves of the rubber tree were lavishly used in the scheme of decoration. The attendance included many prominent selling agents of rubber shoe companies. O. C. Smith, of Chicago, was reelected president. The sentiment of the meeting was that the association had proved a success.

NOT A FAILURE.

A. C. CATELL filed a petition in bankruptcy in the United States court at Cincinnati, Ohio, on December 28, but The A. C. Cattell Co., mackintosh manufacturers and rubber dealers, of which he is manager, are in no wise affected. Mr. Cattell issued at one time certain notes which were to be protected by James F. Brook. On the disappearance of the latter from the country, in 1891, the notes were presented for payment and the Cattell firm was forced into an assignment. All open and merchandise accounts of the firm were paid in full, and the amount of the notes referred to has been a personal liability of Mr. Cattell since 1891. The manager of another rubber house in Cincinnati writes to THE INDIA RUBBER WORLD: "Knowing all the facts connected with the case, I believe Mr. Cattell entitled at this time to a discharge from that debt."

LARGE RUBBER BELTING IN CANADA.

AN elevator conveyor belt made recently by The Gutta-Percha and Rubber Manufacturing Co. of Toronto, Limited, for the Intercolonial railway government elevator at St. John, N. B., and now in use there, is 3529 feet long, 36 inches wide,

and weighs nearly nine tons. "So far as we are able to ascertain," the company advise THE INDIA RUBBER WORLD, "This is the largest ever made." There was also a large quantity of 22 inch belt in the contract. A main drive belt, 58 inches wide and 338 feet long, weighing 2½ tons, was recently made by the same company for one of the Canadian Pacific railway elevators, at Fort William. The Gutta-Percha company have enlarged their factory to three times its original capacity within the past two years.

THE TILLINGHAST TIRE SITUATION.

THE patents controlled by Colonel Theodore A. Dodge have been acquired by The Single Tube Automobile and Bicycle Tire Co., incorporated in New Jersey on November 19 last, with \$1,000,000 capital. Colonel Dodge is president of the new company, with an office in Lord's court, No. 27 William street, New York. Colonel James H. Rice, who has been Colonel Dodge's assistant for four years past in the management of the Tillinghast patents, is vice president. The secretary is William A. Towner, who also is secretary and assistant treasurer of the Rubber Goods Manufacturing Co. Cyrus B. Brown is treasurer. The directorate includes these gentlemen and Kirk Brown and Colonel George A. Pope. Licenses to make single tube tires for bicycles and automobiles have been granted, within a few days past, to all the manufacturers of such tires who were not already licensees, so that there are now no "outsiders." The licensees are:

Old—Hartford Rubber Works Co., Mechanical Fabric Co., Boston Woven Hose and Rubber Co., Revere Rubber Co., L. C. Chase & Co., The B. F. Goodrich Co., Hodgman Rubber Co., and Newton Rubber Works—8.

New—Diamond Rubber Co., Goodyear Tire Rubber Co., New Brunswick Tire Co., Fisk Rubber Co., Kokomo Rubber Co., The India Rubber Co., National India Rubber Co., Indiana Rubber and Insulated Wire Co., Pennsylvania Rubber Co., and the Empire Rubber Manufacturing Co.—10.

When the litigation over the patents was decided recently in favor of Colonel Dodge, the defendants, F. H. Porter *et al.*, acting for the United States Rubber Co., promptly appealed, but since the United States company have sold their tire interests to the Rubber Goods Manufacturing Co., who are interested largely in Colonel Dodge's new company, it appears probable that the litigation will not be long continued. It is reported that licensees are obligated to maintain a minimum trade price of \$4.25 per pair on guaranteed cycle tires and \$2.75 on unguaranteed tires.

COMMERCIAL ENTERPRISE IN MEMPHIS.

A NOTABLE piece of business enterprise was the "Memphis Merchants' and Manufacturers' Special," which left Memphis, Tenn., on January 8, over the recently opened Choctaw, Oklahoma and Gulf railroad, going as far as Oklahoma, and returning to Memphis on January 13. The trip was made by eighty-two representatives of leading Memphis concerns, "with the view of establishing interests, both social and commercial, with the energetic and progressive people located in the territory traversed." The train was made up of a buffet car, baggage car, parlor car, three sleeping cars, and the finest dining car owned by the Pullman company. The distance traveled from Memphis was 600 miles. A prominent part was taken by the wholesale rubber and mill supply firm of Towner & Co., represented by Mr. H. N. Towner. This gentleman was secretary of the executive committee of the excursionists, and with his assistant (H. J. Forsdick, of Forsdick & Wagner, wholesale hats), arranged for the trip and made all the necessary details. The excursionists were so well pleased with the results of their tour, in informing them with regard to the new field for trade

now brought within their reach, and in suggesting the value of co-operation in taking advantage of this field, that they have resolved to form a permanent organization, to continue the work thus begun, under the name of the Choctaw Club.

"The country which we visited," said Mr. Towner, to an INDIA RUBBER WORLD representative, "is rich in cotton, wheat, and corn, these being their chief products. At South McAlester, Indian Territory, are situated the celebrated mines from which they get an unlimited quantity of coal of good quality. There are in the neighborhood of 10,000 miners employed here. Altogether it is a most prosperous country, and will be a fine market for rubber goods, although heretofore they have been unable to purchase goods of this class except from Kansas City and St. Louis. However, now that Memphis is close to them, we will get that trade, and will solicit it constantly, sending travelers through the territory."

"I think undoubtedly we have the greatest country in the middle South, and that Memphis is 'queen of the valley.' The rubber trade in our territory has been excellent in mechanical goods; but we have had a long drought, so that the trade in rubber boots and shoes, as well as clothing, has not been equal to that of years past, although the increased trade on mechanical goods has more than made up the difference. On the whole the outlook for the coming year is better than for the last year, and there is every indication of continued prosperity."

The Memphis *Commercial Appeal*, the leading daily newspaper there, published a special edition of 100,000 copies in connection with this excursion, with a compilation of facts regarding the commercial growth of Memphis which doubtless would surprise most people not acquainted with conditions there. There are ten separate and distinct stocks of rubber belting and mechanical goods carried in Memphis.

TRADE NEWS NOTES.

HARRY C. WILLIAMS was elected general manager of the International Automobile and Vehicle Tire Co., at a meeting of the directors held in New York on January 2. He was for five years general manager of the Fay Manufacturing Co. (Elyria, Ohio), makers of juvenile cycles.

=The Durham Rubber Co., Limited (Bowmanville, Canada), are reported to be doing a nice business, having extended their lines considerably of late, with the prospects for a good, successful year before them.

=William F. Corkery, of Canton, Mass., has become manager of the Haverhill Rubber Co. (Haverhill, Mass.). Before leaving for his new position a reception was tendered to him by the leading social organization of Concord.

=The Standard Underground Cable Co. (Pittsburgh, Pa.) made and installed the underground and overhead cables and also the small cableheads in the plant of the Kinloch telephone exchange in St. Louis. This is the largest independent telephone exchange in America, being wired for 8800 subscribers.

=Roberts, Johnson & Rand, shoe jobbers in St. Louis, who began selling rubbers on July 1 last, are reported to have sold \$60,000 worth up to the end of the year.

=Otto G. Mayer & Co., crude India-rubber merchants, have removed their New York offices from Nos. 7-11 Bridge street to the Continental building, Nos. 44-48 Cedar street.

=Samuel R. Brown, formerly of the Brown Comb Co., Wappinger's Falls, N. Y., is now on the office staff of E. H. Kellogg & Co., manufacturers of machinery oils, No. 244 South street, New York.

=The Miller Rubber Manufacturing Co. (Akron, Ohio)—druggists' sundries and rubber specialties—have removed their offices from No. 233 South Main street to their works in South Akron.

=The new brick storehouse of the Beacon Falls Rubber Shoe Co. will be 150×50 feet, and four stories and basement.

=Frank C. Howlett, the rubber jobber of Syracuse, N. Y., whose purchase of a new store was mentioned in our October issue, has completed the extensive alterations then planned, and is now comfortably established in the building Nos. 212-214 South Clinton street.

=The Boston Belting Co. paid their regular quarterly dividend of \$2 per share on January 1 to stockholders of record on December 16.

=The affairs of the defunct tire firm, Spaulding & Pepper Co. (Chicopee Falls, Mass.), have not yet been settled. Jesse H. Bailey has been removed from the position of assignee and Charles C. Spellman appointed instead. It was reported lately that \$10,000 would soon be distributed to creditors, but the whereabouts of the money is not known.

=The rubber jobbing trade of Minneapolis, Minn., the past year was about \$1,250,000, an improvement of about 15 per cent. over the preceding year. Collections were fair, and the outlook for the new year is first-class. The territory covered is from Wisconsin to Oregon.

=Brown Caldwell, recently secretary of the Peerless Rubber Manufacturing Co., has assumed the position of general Eastern representative of The Sargeant Co., a machinery firm of Chicago, and will have offices in Pittsburgh and New York.

=The Alden Rubber Co. (Barberton, Ohio) have appointed John H. Graham & Co., No. 113 Chambers street, New York, general sales agents for the distribution of their bicycle and vehicle tires and molded and mechanical rubber goods.

=Mr. John J. Voorhees, president of the Voorhees Rubber Manufacturing Co. (Jersey City, N. J.) has been elected a director in The Commercial Trust Co., of New Jersey, a strong financial concern with a capital of \$500,000, and a surplus of \$500,000. Among the directors are numbered some of the best names in New York city, among whom are August Belmont, Frederick C. Bourne, president of The Singer Manufacturing Co.; Charles T. Barney, president of The Knickerbocker Trust Co.; James H. Hyde, president of The Equitable Life Assurance Co., and George W. Young, president of the United States Mortgage and Trust Co.

=Samuel Dawson, for some years employed in a responsible position by the Gutta-percha and Rubber Manufacturing Co., of Toronto, has accepted a position with the new Berlin Rubber Manufacturing Co. (Berlin, Ont.)

=The new factory of the Toronto Rubber Shoe Manufacturing Co., Limited, to replace their plant at Port Dalhousie, burned early last year, has been completed and the machinery installed. At the latest advices the company were about to resume manufacturing.

=The Goodrich Hard Rubber Co. (Akron, Ohio) have reduced their capital from \$300,000 to \$1000. The business of the company having been absorbed by the American Hard Rubber Co. nearly two years ago, it has been deemed unnecessary to maintain the former large capitalization, subject to taxation under the Ohio laws. At the annual meeting in January the officers were re-elected: George T. Perkins, president; H. C. Corson, vice-president; R. P. Marvin, secretary; W. A. Folger, treasurer.

=In the \$50,000 suit of Lucius J. Phelps and Samuel K. Dingle against the New Brunswick Rubber Co., mentioned in the last INDIA RUBBER WORLD, the jury early in January reached a verdict, awarding \$9600 to the plaintiffs. The defendants took an appeal. The complaint was one for damages from termination of a contract under which the defendants were to have charge of the rubber company's tire manufacture.

=A number of the former employés of the rubber factory at Setauket, L. I., which is no longer in operation, are now at work in rubber mills at Naugatuck and Beacon Falls, Conn.

=Quotations on Consolidated Rubber Tire Co. shares in New York were published on January 24 as follows: Preferred, 30 bid, 35 asked; common, 7½ bid.

NEW INCORPORATIONS.

MUTUAL Rubber Co. (San Francisco), January 4, under California laws, to manufacture and sell rubber goods; capital, \$200,000. Incorporators: F. Ephraim, M. W. Backus, M. Green, I. Salinger, and F. Progor, all of San Francisco.

=The Ohio Oilcloth Co., incorporated lately in Ohio with \$200,000 capital, was organized at Youngstown on January 16. H. M. Garlick was elected president; G. M. McKelvey, vice president; Powers Smith, secretary; A. E. Adams, treasurer; and Dr. A. M. Cole, general manager. Dr. Cole lived formerly at Akron, Ohio, where he organized the Western Linoleum Co. It is expected to have the works in operation by August 1.

=The Ferguson Rubber Heel Co. (Columbus, Ohio), January 10, under Ohio laws; capital, \$10,000. To manufacture a rubber heel patented by Henry C. Werner, of the H. C. Werner Co., shoe dealers in Columbus. Incorporators: H. C. Werner, W. C. Hahn, C. S. Ferguson, Frank E. Huggins, and J. S. Rehl. The principle on which the patent was obtained involves the use of a metal plate, embedded in the center of the heel, through which nails are driven into the shoe.

=Rubber Tire Co. of America (New York), November 10, 1899, under West Virginia laws; capital, \$5,000,000, with \$2500 paid in. Incorporators: Amzi L. Barber (president of the A. L. Barbour Asphalt Co. and the Locomobile Co. of America), Samuel T. Davis, Jr., Homer W. Hedge, Lewis A. Beebe, and Avery D. Andrews. Two patents for vehicle tires (Nos. 639,399 and 639,400), issued recently to E. Kempshall, of Newton, Mass., have been assigned to this company, which is supposed to have close relations with The Locomobile Co. of America, incorporated last summer to acquire the automobile business of the Stanley brothers, of Newton, Mass.

CHANGES IN THE CRUDE RUBBER TRADE.

THE articles of copartnership of Pusinelli, Prusse & Co., of Pará, expired by limitation on December 31, when Fritz Pusinelli retired from the firm. The business will be continued under the name Cmok, Prusse & Co., by Hermann Franz Cmok, Oscar F. A. Dusendschön, and Otto P. F. Prusse, with Heilbut, Symons & Co., of Liverpool and London, as special partners. The capital has been increased from 1,000,000 to 1,200,000 milreis, of which 300,000 is contributed by Heilbut, Symons & Co. R. Scrader and Luiz Nommensen will sign for the firm *per procuration*. The Manaos firm of Prusse, Pusinelli & Co. are succeeded by Prusse, Dusendschön & Co. The business represented by these firms was established in London in 1839. The succession of firm name in the Pará branch house has been C. Jaeggi & Co., E. Schramm & Co., Pusinelli, Prusse & Co., and Cmok, Prusse & Co.

=Henry Goedbecker has retired from the crude rubber firm of Heilbut, Symons & Co., of London and Liverpool. The business will be carried on by the remaining partners, F. C. K. Fleischmann and Samuel Heilbut, together with Fritz Pusinelli and L. A. Grossmann, who hitherto have signed for the firm in London and Liverpool, respectively, and who have now been admitted as partners.

=Oesterrieth & Co., of Antwerp, announce that they have disposed of their business in crude India-rubber to the Compagnie Commerciale des Colonies, a joint-stock company with a capital of 1,500,000 francs, organized especially for buying and selling colonial products on commission. Hermann Oesterrieth is

president, and Paul Oesterrieth and Louis Gielis directors of the new company.

BOSTON RUBBER SHOE TRADE.

BOSTON exports of rubber boots and shoes during December, 1899, and for the same month in 1898, were as follows:

To	Pairs.	Value.	Value. 1898.
England	30,849	\$20,257	\$13,583
Nova Scotia.....	9,012	2,021	1,954
Miquelon.....	361	579	276
Turkey.....	80	61	...
Newfoundland.....	36	90	...
Total.....	40,338	\$23,008	\$15,813

A FEW FOREIGN NOTES.

AT the last general meeting of the shareholders of the New York-Hamburger Gummiwaaren-Compagnie (Hamburg) it was voted to increase the capital from 1,200,000 to 1,800,000 marks, by the issue of 100 shares of 3000 marks (= \$750) each.

=The firm of Felton & Guilleaume (Mülheim a/Rhine) has been converted into a joint stock company, under the name Felten & Guilleaume Carlswerk, Aktiengesellschaft, with a capital of 30,000,000 marks. The board of control consists of Theodor and Max Guilleaume and Counsellor Heiliger of Cologne. Emil Guilleaume is director general and Ludwig August Roosen-Runge and Karl Steven directors.

=A new firm has been established in Russia under the name of the Aktiengesellschaft der Gummi- und Zwirnband-manufaktur Jäger & Ziegler in Warsaw, by two Warsaw merchants, J. J. Jäger and R. K. Ziegler, with a capital of 600,000 rubles (=about \$300,000).

RUBBER STATISTICS.

THE Henry A. Gould Co. (New York and Boston) have issued their "Annual Review and Monthly Statistical Position of India-rubber" for 1899, including a chart illustrating the fluctuations of prices for Islands spot Fine Pará for three years past.

= "Earle Brothers' Rubber Statistics," December 31, 1899, contain the customary summary issued by this firm of imports of crude rubber into the United States, and prices, during each month for six years past, together with other details back to 1870, the whole being issued in the same style which has been adhered to in the publication of these annual summaries for thirty years past.

= "William Wright & Co.'s Liverpool Annual Rubber Report" for 1899 contains the usual exhaustive summary of stocks and prices for the year, together with comparative figures for several preceding years. The weekly range of prices of fine Pará and Negrohead India-rubber is given for twelve years past.

=Livesey & Co. (Liverpool) have favored THE INDIA RUBBER WORLD with their "Annual Review of India-rubber Market" for 1899.

=Weiss & Co. (Rotterdam) send us, as usual, "Statistics of India-rubber, Balata, and Gutta-percha" for 1899.

THE North Borneo Trading Co., Limited, during the eighteen months covered by their latest report, spent £1241 in developing their estates, of which £723 was for rubber cultivation on the Sekong plantation. The chairman hoped to see the latter item still larger in the next balance sheet, because if they got good rubber they would obtain very satisfactory results from the investment.

THE average price of India-rubber imported into Russia during 1898, as officially reported, was 35.7 cents per pound, against 32.3 cents per pound in 1897.

THE ANTWERP RUBBER MARKET.

TO THE EDITOR OF THE INDIA RUBBER WORLD: At today's sale 192 tons of rubber were sold, of 247 tons offered, at an average of 1 per cent. over broker's estimations. Several lots appear to have been taken for the United States. Among the principal lots sold were:

14 tons Congo (Wamba) red thimbles, estimation 4 fr., at 4.57½.
44 tons Lower Congo red thimbles, estimation 6.10 fr., at 6.12½.
13 tons Lake Leopold II, estimation 9.25 fr., at 9.52½.
19 tons Aruwimi, estimation 9.30 fr., at 9.60.
15 tons Bussira, estimation 10 fr., at 10.12½ and 10.22½.

Among the lots withdrawn, and which may be had at the estimations, are 12 tons Upper Congo (Lomani), at 10.20 fr., and 15 tons Konilou Niari, at 7.75 fr.

C. SCHMID & CO.

Antwerp, January 10, 1900.

ANTWERP RUBBER STATISTICS FOR DECEMBER.

DETAILS.	1899.	1898.	1897.	1896.	1895.
Stocks, Nov. 30, kilos	179,778	270,315	183,215	170,652	116,179
Arrivals in December	319,351	220,869	84,880	167,983	40,451
Aggregating . . .	499,129	491,184	268,095	278,635	156,630
Sales in December . . .	207,138	227,844	173,032	139,007	67,776
Stocks, December 31	291,991	263,340	94,463	139,628	88,854
Arrivals since Jan. 1, . . .	3,402,880	2,014,591	1,679,154	1,115,875	531,074
Sales since January 1, . . .	3,374,229	1,845,714	1,724,319	1,065,101	442,220

SALES AND PRICES FOR THE YEAR.

GRADES.	Sales Kilos.	Dec. 31, 1898.	Dec. 31, 1899.	Percentage Increase.
Kassai red No. II . . .	157,000	fr. 9.90	fr. 10.50	6.
Upper Congo, Lopori . . .	465,000	9.50	10.62½	11.84
Upper Congo, Equateur . . .	220,000	9.30	10.62½	14.24
Upper Congo, Bussira . . .	147,000	9.30	10.62½	14.24
Upper Congo, Uellé . . .	140,000	9.30	9.90	6.45
Upper Congo, Aruwiml . . .	230,000	8.30	9.45	13.85
Upper Congo, Mongalla . . .	400,000	9.05	10.25	13.25
Lower Congo red thimbles . . .	256,000	5.72½	6.17½	7.86
Fine Pará	45. 1d.	45. 7d.	12.2	

* * *

EMILE GRISAR'S annual review of the Antwerp rubber market specifies the sources of the arrivals at that port during the past two years as follows, the figures denoting kilograms:

1898.	1899.
1,734,305	From Congo Free State
280,286	From Other Countries
2,014,591	Total

"Improvements made in the waterway of the upper Congo river," it is stated, "have made possible the exportation from the Congo district of the old accumulated stock and enabled exploiting companies at the same time to extend their field of action, so that the supply in the different stations is commencing to be more regular. Buyers appreciate more and more the quality of Congo rubber, especially the white grades coming from the upper Congo, such as Lopori, Bussira, Equateur, Mongalla, etc. Among the shipments received from the Kasai, however, we have noticed that the rubber was quite often imperfectly dried before it was packed for export to Europe. The consequence is that these grades shrink during the voyage and sell at lower prices on account of a certain proportion of volatile matter which they contain. All these different grades are represented in this year's transactions on a large scale."

"Among the places of production from which importations have shown the greatest development, may be noted in the front rank the Soudan. We have also received some interesting ship-

ments from the French Congo and Madagascar, but as the methods of coagulation used in these colonies are still very primitive, their production could be improved by more rational methods of treatment. Some fine shipments of Loanda and Benguela have found ready buyers."

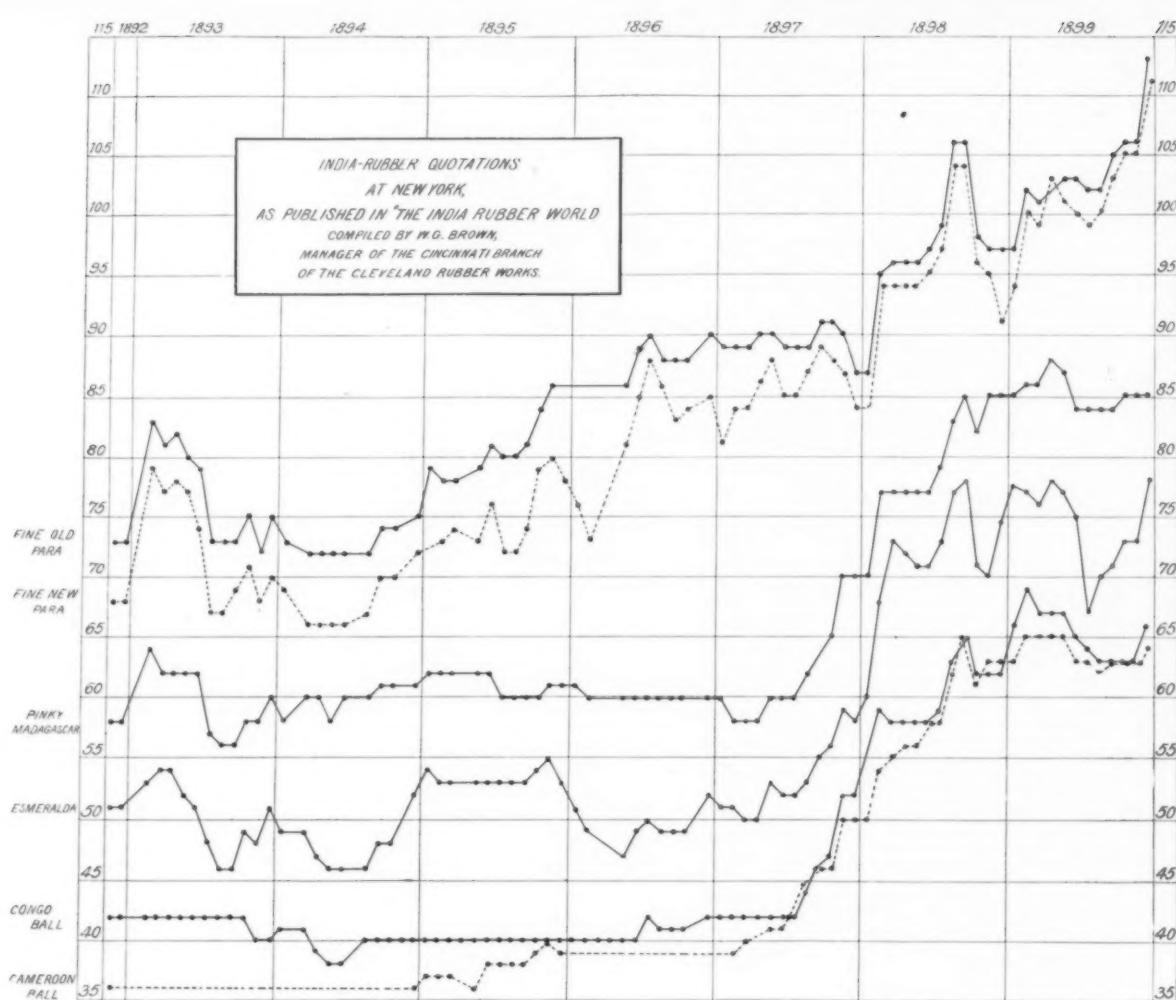
THE WALES-GOODYEAR MOTORMEN'S SHOE.

THERE is on exhibition at the Boston office of Chester J. Pike, selling agent of the United States Rubber Co., an interesting shoe constructed on novel lines, just produced by the Wales-Goodyear company from ideas and suggestions made by Mr. Pike. The accompanying cut illustrates its ap-



pearance. It is designed primarily for motormen, and has been named the "Motormen's shoe," although it is also exceptionally well adapted to winter hunting wear. It is high cut—coming well up to the calf—with a snow excluding pocket, extending to the top. Its sole is of heavy rubber, similar to that on a boot, and it has a solid heel; the upper is waterproof cashmere, and the lining is a heavy high-grade felt, insuring the greatest warmth. The shoe is so constructed that the wearer can put on two or three pairs of socks, and the top is sufficiently full to admit of the trousers being tucked in, if desired. To prevent the unpleasantness some feet experience from felt insoles, the insole is made of leather, so that, while the wearer has all the warmth of the socks and lining, the sole of the foot is as comfortable as in a leather shoe. The "Motormen's shoe" is made with a lace which permits snugging the shoe close to the foot and leg, in conformity to such dressing as the foot may wear. The lace has the advantage of not causing the objections that are sometimes aroused against buckles, besides possessing many advantages that the buckle does not have. Like all Wales-Goodyear shoes, the "Motormen's shoe" has the element of strength necessary in such a hard service article, while retaining a graceful outline. In many respects this "Motormen's shoe" is superior to a rubber boot, for the special use it is designed, and in the case of motormen it is economical, because, while wearing this, no leather shoe is required. Mr. Pike has received such satisfactory reports from those who have used them that he feels the "Motormen's shoe" has come to stay, among motormen, hunters, policemen, and lumbermen.

THE exports of India-rubber from the French Congo during 1898 amounted to 341,013 pounds to France, valued at 744,028 francs, and 931,029 pounds to other countries, valued at 2,031,336 francs; total, 1,272,042 pounds, valued at 2,775,364 francs.



ADDITIONAL TRADE NOTES.

THE India-Rubber, Gutta-Percha, and Telegraph Works Co., Limited (London), announce that, in consequence of the continued increase in the cost of raw materials, they have been reluctantly compelled to further advance the cost of their products by 10 per cent., dating from January 10.

The United States Rubber Co. made and sold over 2,000,000 pairs of combination boots last year, including the "Uncle Sam" knit boot and various styles of felt boots. The felt boots gave satisfaction, and the demand for them increased as the season advanced; but it was the "Uncle Sam" knit boot that made the phenomenal record. It is stated that out of 360,000 pairs, not a single boot was returned as imperfect.

Do not waste your postage by writing to the United States Rubber Co. for any more calendars. They would send them if they could, but the call for calendars was so great that the edition was exhausted four weeks ago, and, of course, it is out of the question to print another edition now.

Charles Macintosh & Co., Limited (Manchester, England) advise THE INDIA RUBBER WORLD that, their late secretary Mr. H. Elton, having received an appointment of the secretaryship to the recently formed Calico Printers' Association, Limited, they have appointed Mr. L. Clay their secretary, he having been their cashier at Manchester for ten years, and prior to that their cashier in London.

At the late general meeting of the Actiengesellschaft für Fabrikation Technischer Gummiwaren, E. Schwanitz & Co., (Berlin), a by-law was adopted, appropriating 3000 marks each for the annual salary of the directors, besides 10 per cent. of the profits, after, however, first deducting 5 per cent. for preferred shareholders and 4 per cent. for regular shareholders.

There has been on the whole no increase in the supply of African rubber supplies. Several districts have almost doubled their output within a year, whereas others are considerably less. The increase of Congo rubber supplies has been very marked, while exports of Benguela and Loando sorts have fallen off. Gold Coast, Accra, and Lagos sorts have also declined in amount.

REVIEW OF THE CRUDE RUBBER MARKET.

DURING the month which has elapsed since our last review the condition has prevailed of a steady market for rubber in the New York market, in spite of the comparatively light demand on the part of manufacturers, who, as a rule, have confined their buying to absolute necessities. Importers, on the other hand, evidently on account of possessing confidence that the near future will force buyers into the market, have not urged their holdings upon consumers. The exceptionally mild winter must necessarily have given some check to the demand for rubber for the production of season goods—particularly footwear and clothing—though there has been no actual shutdown of the factories. The demand for rubber from the mechanical goods factories has been steady, while the consumption for insulation work has been larger than most people in the trade seem aware of. Yet with all the activity in various branches, the fact has remained that, on account of the hesitation of consumers to place orders, crude rubber has been quoted at times during the month at lower prices than rubber bought on the same dates at Pará could be laid down here for. As was the case during December, New York prices have likewise been lower than in Europe, but our quotations now show a real advance.

The strength of the position at Pará has been due to encouraging reports from the consuming markets in America and Europe, combined with a continued shortage of local supplies, in spite of the expectation that, as was the case a year ago, the light receipts of Pará during the early winter might be compensated for by the arrivals later in the season. The receipts of rubber at Pará during January, from the 1st to the 26th inclusive, were 2710 tons, against 2985 tons for the whole month of January last year. The total receipts for the crop year to January 26 were 13,795 tons, against 14,215 tons to January 31 last year.

The latest official statistics published by the United States treasury department, showing the imports of crude India rubber and Gutta-percha, are of interest in their bearing upon prospective rubber prices. These imports have been for home consumption—with the exception of the share which goes into Canada—and there are no present indications that the rate of consumption which these figures indicate will show an early falling off. Hence the American demand for rubber may be expected to continue, and the same undoubtedly will prove true of European consumption, while no material increase in rubber supplies is apparent. The official figures referred to (denoting pounds) are as follows:

	1897.	1898.	1899.
India-rubber.....	42,159,126	44,236,070	54,408,495
Gutta-percha.....	1,002,897	367,269	492,988
Total.....	43,162,023	44,603,339	54,901,483

The latest quotations in the New York market are:

PARÁ.	AFRICAN.
Islands, fine, new.... 107 @108	Tongues..... 65 @66
Islands, fine, old.... 109 @110	Sierra Leone..... 54 @64
Upriver, fine, new.... 108 @109	Benguella..... 78 @79
Upriver, fine, old.... 111 @112	Congo ball..... 65 @66
Islands, coarse, new.... 64 @65	Cameroon ball..... 66 @67
Islands, coarse, old.... none here	Flake and lumps..... 48 @52
Upriver, coarse, new.... 84 @685	Accra flake..... 22 @23
Upriver, coarse, old.... 85 @86	Accra buttons..... 72 @73
Cauchó (Peruvian) sheet 65 @66	Accra strips..... 74 @75
Cauchó (Peruvian) strip none imported now.	Lagos buttons..... 69 @70
	Lagos strips..... 69 @70

Cauchó (Peruvian) ball 79	@80	Liberian flake..... @80
CENTRALS.		Madagascar, pinky.... 84 @85
Esmeralda, sausage.... 75	@76	Madagascar, black.... 60 @62
Guayaquil, strip.... 66	@67	GUTTA-PERCHA.
Nicaragua, scrap.... 74	@75	Fine grade..... 1.75
Mangabeira, sheet.... 60	@61	Medium..... 1.45
EAST INDIAN.		Hard white..... 1.20
Assam..... 79	@82	Lower sorts..... 65
Borneo..... 39	@54	Balata.....

Late Pará cables quote :

	Per Kilo	Per Kilo,
Islands, fine..... 10\$600	Upriver, fine..... 11\$700	
Islands, coarse..... 58300	Upriver, coarse..... 79900	
	Exchange 7½ d.	

STATISTICS OF PARA RUBBER (METRIC TONS).

	NEW YORK.		ENGLAND.	
	Fine and Medium.	Coarse.	Totals, 1899.	Totals, 1898.
Stocks, November 30.....	271	35	306	222
Arrivals, December.....	622	321	943	1347
Aggregating.....	893	356	1249	1560
Deliveries, December.....	541	298	839	1262
Stocks, December 31..	352	58	410	298
				404
	PARÁ.		ENGLAND.	
	1899.	1898.	1899.	1898.
Stocks, November 30..	360	305	814	435
Arrivals, December... 2600	2600	3100	580	915
Aggregating.....	2960	2905	3914	1015
Deliveries, December.. 2380	2245	3379	575	1000
Stocks, Dec. 31..	580	660	535	440
				885
			1899.	1898.
World's supply, Dec. 31 (excluding Cauchó) ..	3233	2773	1885	1195
Pará receipts, July 1 to December 31.....	11,085	11,230	11,440	
Afloat from Pará to United States, Dec. 31....	977	—	—	
Afloat from Pará to Europe, December 31....	826	—	—	

THE LONDON RUBBER MARKET.

JACKSON & TILL, under date of January 1 report stocks :

	1898.	1899.	1899.
PARÁ..... (English tons)	—	—	6
LONDON			
Pará.....	179	169	48
Borneo.....	17	41	17
Assam and Rangoon.....	448	414	228
Other sorts.....	644	624	299
Total.....	440	395	467
LIVERPOOL			
Pará.....	771	590	610
Other sorts.....	—	—	—
Total, United Kingdom.....	1855	2100	1376

PRICES PAID DURING DECEMBER.

	1899.	1898.	1899.
Pará fine..... 4½@4/7	3½@4½@4/1½	3½@3½@3½	
Negroheads, Islands... 2/9	2/8 (@2/11)	2/2	
Negroheads, scrappy... 3/7 @3/7½	3/5½ @3/7½	2/7	
Bolivian..... 4/7 4/0½ @4/1½	4/0½ @4/1½	3/7@3/7½	

William Wright & Co., Liverpool, in their latest circular, issued at a time when, owing to a high bank rate and to the time of the year, demand for fine Pará was dull and prices just a shade easier, say: "There is, however, plenty of reserve strength in the market, any fractional decline being taken advantage of by buyers. Generally speaking, there is more disposition to buy than to sell. Supplies in Pará will be short of last year, and, with a continued good American and European

demand, we fail to see any chance of any material decline in prices, more especially as there is a possibility of the crop being less than last season."

In regard to the financial situation, Albert B. Beers (broker in India-rubber and commercial paper, No. 58 William street, New York) advises us as follows:

"During the early part of January the money market conditions were but little changed from those prevailing in December, rates being high and but little demand for paper, but during the last week of the month conditions have changed completely, rates for call money and collateral loans having dropped as low as 2@3 per cent. for the former, and 4@4½ per cent. for the latter, and there is now a fair demand for commercial paper at 4½@5 per cent. for the best names, and 5½@6½ per cent. for others."

IMPORTS FROM PARA AT NEW YORK.

[All Figures Denote Pounds.]

December 26.—By the steamer *Cearense*, from Manáos and Pará [Corrected figures; see last published report.] :

IMPORTERS.	FINE.	MEDIUM.	COARSE.	CAUCHO.	TOTAL.
Crude Rubber Co.	219,200	33,900	77,400	...	330,500
New York Commercial Co.	91,100	18,800	42,400	3,000	155,300
Reimers & Meyer	98,100	38,000	119,000	1,600	256,700
Boston Rubber Shoe Co.	71,600	5,700	18,100	29,700	125,100
Albert T. Morse & Co.	72,900	11,800	58,100	10,700	153,500
Otto G. Mayer & Co.	50,600	4,400	13,800	...	68,800
Lawrence Johnson & Co.	7,500	4,300	2,400	...	14,200
George G. Cowl	6,200	1,400	4,300	...	11,900
G. Amsinck & Co.	5,000	700	1,400	...	7,100
Total	622,200	119,000	336,900	45,000	= 1,123,100

PARA RUBBER VIA EUROPE.

POUNDS.

DEC. 23.—By the <i>Campania</i> =Liverpool:	
Reimers & Meyer (Coarse)	8,000
DEC. 26.—By the <i>La Bretagne</i> =Havre:	
Albert T. Morse & Co. (Coarse)	22,000
DEC. 29.—By the <i>Germanie</i> =Liverpool:	
George A. Alden & Co. (Coarse)	5,000
Crude Rubber Co. (Coarse)	5,000
Edmund Reeks & Co. (Fine)	25,000
Reimers & Meyer (Coarse)	6,500
JAN. 2.—By the <i>La Normandie</i> =Havre:	
George A. Alden & Co. (Coarse)	4,000
JAN. 3.—By the <i>Taurie</i> =Liverpool:	
Crude Rubber Co. (Coarse)	4,000
JAN. 15.—By the <i>Etruria</i> =Liverpool:	
Reimers & Meyer (Fine)	11,500
Livesey & Co. (Coarse)	3,000
JAN. 17.—By the <i>Oceanic</i> =Liverpool:	
Livesey & Co. (Coarse)	5,000
JAN. 22.—By the <i>Campania</i> =Liverpool:	
William Wright & Co. (Coarse)	16,500

OTHER ARRIVALS AT NEW YORK.

CENTRALS.

POUNDS.

DEC. 27.—By the <i>Vigilancia</i> =Mexico:	
E. Steiger & Co.	11,000
Thebaud Brothers	4,000
H. Marquardt & Co.	6,000
H. W. Peabody & Co.	500
Elmenhorst & Co.	21,500
DEC. 28.—By the <i>Buffon</i> =Pernambuco:	
Elmenhorst & Co.	6,500
DEC. 28.—By the <i>Adirondack</i> =Savanna:	
Punderford & Co.	1,000
For Hamburg	1,000
J. A. Pauly & Co.	600
Roldan & Van Sickel	200
Munoz & Espriella	200
DEC. 26.—By the <i>Finance</i> =Colon:	
Hirzel, Feitman & Co.	14,000
G. Amsinck & Co.	11,000
Roldan & Van Sickel	8,400
Czarnikow, McDougal & Co.	8,300
Isaac Brandon & Bros.	6,700
D. A. De Lima & Co.	4,700
Flint, Eddy & Co.	3,400

D. N. Carrington & Co.	2,300	JAN. 6.—By the <i>City of Washington</i> =Mexico:		
New York Commercial Co.	2,200	H. Marquardt & Co	3,600	
Manman & Kemp	2,000	Thebaud Bros.	3,600	
A. P. Strout	1,100	Willard Hawes & Co.	2,000	
Munoz & Espriella	700	E. Steiger & Co.	1,500	
DEC. 29.—By the <i>El Dorado</i> =New Orleans:		F. Probst & Co.	1,000	
Albert T. Morse & Co.	8,000	JAN. 8.—By the <i>Belgravia</i> =Hamburg:		
DEC. 30.—By the <i>Phoenixia</i> =Hamburg:		Livesey & Co.	6,000	
Reimers & Meyer	2,400	JAN. 8.—By the <i>Alleghany</i> =Savanna:		
JAN. 2.—By the <i>St. Louis</i> =Southampton:		Kunhardt & Co.	2,600	
J. H. Rossback & Bros.	37,200	Gutierrez, Rosenfeld & Co.	2,000	
JAN. 2.—By the <i>Orizaba</i> =Mexico:		W. H. Crossman & Bro.	700	
Tibbals & Blossom	1,000	John Boyd, Jr., & Co.	1,200	
J. W. Wilson & Co.	1,000	H. W. Peabody & Co.	500	
E. Steiger & Co.	500	JAN. 9.—By the <i>Themis</i> =Belize:		
Thebaud Brothers	500	Eggers & Heimlein	3,000	
JAN. 2.—By the <i>Aleene</i> =Greytown:		Harburger & Stack	700	
A. P. Strout	14,500	A. S. Lascelles & Co.	500	
A. D. Straus & Co.	4,600	JAN. 12.—By the <i>Yucatan</i> =Mexico:		
Kunhardt & Co.	1,300	E. Steiger & Co.	7,000	
Flint, Eddy & Co.	1,500	Thebaud Brothers	1,000	
JAN. 4.—By the <i>El Cid</i> =New Orleans:		JAN. 15.—By the <i>St. Paul</i> =Southampton:		
Albert T. Morse & Co.	10,500	J. H. Rossback & Bros.	18,000	
Harburger & Stack	1,500	Reimers & Co.	8,000	
JAN. 6.—By the <i>Lucania</i> =Liverpool:		JAN. 10.—By the <i>Allianca</i> =Colon:		
Reimers & Co.	7,900	Dumarest & Co.	11,200	
JAN. 4.—By the <i>Athor</i> =Colon:		A. Santos & Co.	8,800	
Hirzel, Feitman & Co.	8,400	Hirzel, Feitman & Co.	7,900	
G. Amsinck & Co.	6,300	Flint, Eddy & Co.	7,400	
Isaac Brandon & Bros.	6,200	Munoz & Espriella	7,600	
Czarnikow, McDougal & Co.	5,200	Roldan & Van Sickel	3,100	
Lanman & Kemp	4,800	Piza, Nephews & Co.	2,800	
Crude Rubber Co.	4,600	W. R. Grace & Co.	1,600	
A. Santos & Co.	4,300	Lanman & Kemp	1,600	
Dumarest & Co.	3,500	Ascenso & Casas	1,100	
A. P. Strout	3,400	R. Fahnen & Co.	800	
W. Loaiza & Co.	2,700	W. Loaiza & Co.	600	
H. Marquardt & Co.	2,200	Samper & Co.	300	
De Sola Loh & Co.	1,500	Jimenez & Escobar	200	
Flint, Eddy & Co.	1,500	JAN. 15.—By the <i>Allat</i> =Greytown:		
Roldan & Van Sickel	1,700	D. A. De Lima & Co.	7,500	
D. A. De Lima & Co.	1,200	A. P. Strout	3,000	
Mosle Brothers	1,300	Andreas & Co.	3,500	
Munoz & Espriella	1,300	G. Amsinck & Co.	1,200	
Praine, Aiston & Co.	1,300	A. N. Rotholz	1,000	
F. Probst & Co.	1,000	Kunhardt & Co.	900	
R. G. Barthold	900	Munoz & Espriella	900	
Kunhardt & Co.	800	JAN. 15.—By the <i>El Norte</i> =New Orleans:		
J. B. Sageman	300	Albert T. Morse & Co.	17,000	
L. Johnson & Co.	400	3,000	A. N. Rotholz	5,500
A. M. Capen Sons	100		20,500	
Samper & Co.	1,500			
JAN. 6.—By the <i>Coleridge</i> =Pernambuco:				
Lawrence Johnson & Co.				

JAN. 18.—By the <i>Adriatic</i> =Colon:
Hirzel, Feltman & Co..... 12,100
Czarnikow, McDougall & Co..... 11,400
Isaac Brandon & Bros..... 4,800
G. Amsinek & Co..... 3,200
A. P. Strout..... 3,200
Lannan & Kemp..... 3,000
Kunhardt & Co..... 1,800
Roidan & Van Siekel..... 1,000
R. G. Bartholz..... 1,000
A. S. Lascelles & Co..... 700
A. D. Straus & Co..... 300
D. H. Carrington..... 200
W. H. Crossman & Bro..... 200
J. B. Sageman..... 100
43,000

JAN. 22.—By the <i>Vigilante</i> =Mexico:
H. W. Peabody & Co..... 2,500
E. Steiger & Co..... 1,000
B. Matherson..... 500
J. E. Ward & Co..... 2,000
4,200

JAN. 22.—By the <i>El Sud</i> =New Orleans:
Albert T. Morse & Co..... 20,000
W. R. Grace & Co..... 3,000
23,000

JAN. 23.—By the <i>Adirondack</i> =Port Limon:
Guiterman, Rosenfeld & Co..... 2,000
For London..... 2,000
D. A. De Lima & Co..... 100
Jimenez & Escobar..... 100
4,200

JAN. 22.—By the <i>Campania</i> =Liverpool:
Marx Hydes & Co..... 5,000

JAN. 23.—By the <i>Hudson</i> =New Orleans:
W. R. Grace & Co..... 2,500

JAN. 23.—By the <i>Chaucer</i> =Bahia:
New York Commercial Co..... 3,500
J. H. Rossback & Bros..... 38,000
41,500

JAN. 24.—By the <i>Pretoria</i> =Hamburg:
Reimers & Meyer..... 10,000

JAN. 24.—By the <i>Finance</i> =Colon:
Crude Rubber Co..... 4,700
D. N. Carrington..... 4,000
Isaac Brandon & Bros..... 4,100
W. Loaiza & Co..... 700
Middleton & Co..... 300
14,400

JAN. 24.—By the <i>Carth</i> =Truxillo:
Eggers & Heintlein..... 5,000
H. W. Peabody & Co..... 1,000
6,000

JAN. 24.—By the <i>El Old</i> =New Orleans:
A. T. Morse & Co..... 2,700
Flint, Eddy & Co..... 800
3,500

AFRICANS.

POUNDS.
DEC. 23.—By the <i>Campania</i> =Liverpool:
George A. Alden & Co..... 15,000
Crude Rubber Co..... 14,000
Reimers & Meyer..... 4,000
Marx Hydes & Co..... 8,000
41,000

DEC. 26.—By the <i>Graf Waldersee</i> =Hamburg:
Reimers & Meyer..... 34,500

DEC. 27.—By the <i>Keusington</i> =Antwerp:
George A. Alden & Co..... 60,000
Crude Rubber Co..... 58,000
Otto G. Mayer & Co..... 24,500
Joseph Cantor..... 9,000
Albert T. Morse & Co..... 6,500
158,000

DEC. 27.—By the <i>British King</i> =Antwerp:
William Wright & Co..... 16,000
Crude Rubber Co..... 7,000
Reimers & Meyer..... 6,000
William Wright & Co..... 3,500
24,500

DEC. 29.—By the <i>Germanic</i> =Liverpool:
George A. Alden & Co..... 7,000
Crude Rubber Co..... 7,000
Reimers & Meyer..... 6,000
William Wright & Co..... 3,500
24,500

DEC. 30.—By the <i>Phoenicia</i> =Hamburg:
Otto G. Mayer & Co..... 13,000
Albert T. Morse & Co..... 2,500
15,500

JAN. 8.—By the <i>Tauric</i> =Liverpool:
George A. Alden & Co..... 16,000
Crude Rubber Co..... 14,000
Reimers & Meyer..... 10,000
William Wright & Co..... 17,000
Livesey & Co..... 11,000
Reimers & Co..... 11,000
80,000

JAN. 4.—By the <i>European</i> =London:
George A. Alden & Co..... 3,000
Crude Rubber Co..... 3,000

JAN. 5.—By the <i>Noordland</i> =Antwerp:
Gutta-Pechha and Rubber Mfg. Co. 2,500

JAN. 6.—By the <i>Ems</i> =Genoa:
Revere Rubber Co..... 5,000

JAN. 6.—By the <i>Lucania</i> =Liverpool:
Albert T. Morse & Co..... 13,000
Reimers & Co..... 9,500
21,500

JAN. 8.—By the <i>Belgravia</i> =Hamburg:
Livesey & Co..... 5,000
George A. Alden & Co..... 4,000
9,000

JAN. 8.—By the <i>La Champagne</i> =Havre:
A. T. Morse & Co..... 13,500
Reimers & Co..... 13,500

JAN. 11.—By the <i>Boric</i> =Liverpool:
George A. Alden & Co..... 17,000
Crude Rubber Co..... 20,000
37,000

JAN. 12.—By the <i>Pennsylvania</i> =Hamburg:
Livesey & Co..... 12,500
Reimers & Co..... 15,000

JAN. 15.—By the <i>St. Paul</i> =Southampton:
Reimers & Co..... 15,000
124,000

JAN. 15.—By the <i>Etruria</i> =Liverpool:
Albert T. Morse & Co..... 45,000
Reimers & Co..... 17,000
George A. Alden & Co..... 18,000
Crude Rubber Co..... 17,500
Otto G. Mayer & Co..... 20,000
William Wright & Co..... 2,500
4,000
124,000

JAN. 15.—By the <i>Oceanic</i> =Liverpool:
Albert T. Morse & Co..... 11,500
Reimers & Co..... 5,500
George A. Alden & Co..... 7,000
Crude Rubber Co..... 7,000
31,000

JAN. 22.—By the <i>Campania</i> =Liverpool:
Albert T. Morse & Co..... 11,500
Reimers & Co..... 5,500
George A. Alden & Co..... 30,000
Crude Rubber Co..... 9,500
48,500

JAN. 22.—By the <i>Pretoria</i> =Hamburg:
Reimers & Co..... 35,000
George A. Alden & Co..... 5,500
40,500

JAN. 23.—By the <i>Dona Maria</i> =Lisbon:
Reimers & Meyer..... 84,000
Albert T. Morse & Co..... 11,000
95,000

EAST INDIAN.
DECEMBER.—By the <i>Graf Waldersee</i> =Hamburg:
Livesey & Co..... 5,000
Reimers & Co. (Pontianak)..... 550,000
561,500

JAN. 12.—By the <i>John Sanderson</i> =Singapore:
Reimers & Co..... 11,500
Reimers & Co. (Pontianak)..... 249,141
249,141

JAN. 15.—By the <i>Moyenne</i> =Singapore:
J. W. Greene & Co..... 40,000
Reimers & Co..... 35,000
75,000

JAN. 17.—By the <i>August</i> =Singapore:
J. W. Greene & Co. (Pontianak)..... 17,000
George A. Alden & Co. (Pontianak)..... 45,000
60,000

JAN. 17.—By the <i>September</i> =Singapore:
Revere Rubber Co..... 78,489
308,788

JAN. 17.—By the *October*=Singapore:

1900.

2,500

170,000

T A .

GUNDS.

G:

12,000

20,500

G:

2,500

2,000

S.

R.

VALUE.

157,301

20,075

1,813

179,189

\$41,220

58,661

\$88,566

GUNDS.

27,233

16,032

rk:

16,694

York

2,519

3,619

3,619

9,433

2,285

4,462

25,960

16,479

VALUE.

87,267

96,927

149,201

109,975

162,947

89,686

25,231

47,317

119,618

51,945

197,523

147,488

al.

3,594

0,220

2,679

1,922

5,885

3,648

5,190

3,138